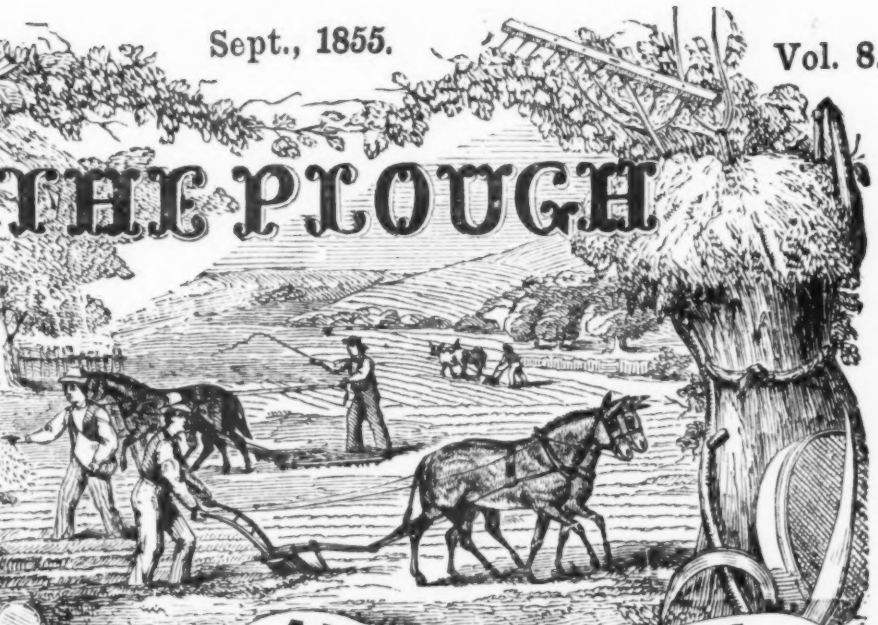
Suffolk Gazette

No. 3. Sept., 1855. Vol. 8.

THE PLOUGH



THE LOOM AND THE ANVIL.

FARMER AND MECHANIC.

CONTENTS OF NO. 3.—VOL. VIII.

For Prospectus, Terms, Postage, &c., see next page of Cover.

PUBLISHED AT NO. 9 SPRUCE ST., NEW-YORK.

The Plough, the Loom, and the Anvil.

VOL. VIII. SEPTEMBER, 1855. No. 3.

NORTHERN AND SOUTHERN INDUSTRY.

THE NORTH AND THE SOUTH.—From the very able and elaborately prepared article which opens *De Bow's Review* for April, we copy the following paragraph:

"Let us now compare the present condition of a northern and southern parish, each containing 100 families of six persons. In the former we shall find some three of its families who derive the whole or part of their income directly from the United States Treasury, while there is no such family in the latter, if it be like the majority of the slave-holding communities of the same size. If the northern parish happen to be on the coast, every bay, and inlet, and creek has been carefully surveyed by the federal government, and lights shine every twenty odd miles along the shore, to protect its mariners. In the southern parish, the vessels must find their way through the shoals as best they can, for there has been no survey, and no warning beacon cheers the storm for hundreds of miles. The Union spends ten dollars in cutting roads and canals, cleaning rivers and constructing harbors in the northern parish, where it spends one in the southern. And to secure these benefits the parish in the free States pays in taxes $388, and receives back in disbursements $1360; while the same number of families in the slave States pay $1620, and receive only $270. The excess of $1350 goes to be distributed amongst the northern parishes. This is not all, for the hundred families of the southern neighborhood are deprived of the profits of using over $8000 of their own cotton, tobacco, grain, etc., in order to let the hundred northern families use over $5000 of it a whole year free of charge. When the two parishes join in war against a common foe, the southern must send five times as many soldiers, and pay five times as much of the expenses; and yet when the conquest is over, it must suffer its partner to seize all the conquests, and at the same time to kidnap its property and attack its domestic peace. Can insolence—can tyranny go further? Or can history show a more degraded community than the southern must be if it submits?"

In our number for May we entered upon an examination of certain statements made by this able writer in *De Bow's Review*. We then noted, for future comment, which has accidentally laid in our drawer till the present moment. We now propose to make it the basis of a few practical suggestions, and a perusal of it will show that if we speak plainly, we are not without precedent. We shall endeavor to be at least logical and courteous.

All the other distinctive differences, so earnestly set forth by this writer, result from the same and kindred causes. You cannot have the interest to expend where there is no principal, and equally true is it that where commercial pursuits are not fostered, where the social structure FORBIDS extensive manufacturers, whether of wood or iron, or cotton or wool, then the facilities, the conveniences, the profits, the wealth, the energy of character and the success which variety of pursuit alone can produce, are not to be expected. Nor are those who do enjoy them to be censured because they are not universal.

The statistics which we have published show that in mere agricultural districts, agricultural products are not more productive of income, than they are in such a territory as we find in the Northern States. Thus, while in New-England the "manufacturing, mining, and mechanic arts" produce an income of $102 00 to each person, and at the South only $13, the agricultural products of the South, PER ACRE, are only $1 03, while in New-England they are $1 76. This is stated by Mr. Tucker, and we do not doubt his accuracy.

Our learned friend, De Bow, in the census of 1850, also brings us to the same conclusion. The average value of land, *per acre*, in New-England, he estimates at $20 27, while in the Southern States he calls it $5 34, and this, too, in the older States of the Union.

How can there be any diversity of opinion on this subject with such admitted facts before us? And still the South ridicules the "factory" system of the North, and describes her operations in anything but flattering phraseology. True, they sometimes quote from some zealous writer living on Northern soil, though they often pervert and exaggerate; but those who live in New-England know many of these statements to be either absolutely false, or true only in certain limited localities. In such cities as Lowell, Lawrence, and Manchester, the female operatives are "separated from family influences," and parental watch; but there is a substitute by no means inoperative in the *esprit de corps*, which expels from their social circle every one who brings reproach upon it by offending against good morals. They are chiefly the daughters of farmers, well brought up, and strictly moral from habit and from principle; and many of them are well educated, competent to teach in schools, North or South, and thus in fact many do occupy one half the year, while they work in the factory the other half.

But this state of things exists only in a few large cities. Where there is one Lowell, there are a dozen Waterfords and Lonsdales, villages chiefly consisting of tenements built by the owner of the mills, or by the farmers and mechanics of the neighborhood. On these places, the dwelling is hired by the head of the family, while the children work in the mill. There no such separation of households is seen. Perhaps the father is also employed by the same parties. The house is rented in view of just this arrangement. The former occupant abandons, either because he can do better elsewhere, or because his children have married and he goes to live with them, or to the place of his fathers, and a new occupant is obtained for the dwelling, who can supply the help needed by the mill owner. Such establishments are scattered all over New-England, and if Lowell were as bad as the most zealous of the enemies of this system would make it, it would not even then be good evidence of what the great majority of factory villages are in New-England. Besides, superintendents often exert a most powerful influence in favor of good morals, in these more unfavorable circumstances. We remember that in one of these large cities, one of them, in conversing with ourself on this subject, once said,

"I will give you $100 if you will tell me some new and innocent amusement, for our operatives after the hours of work." This remark shows the interest he felt in this direction, and with such men to manage the affairs of the company, there is comparatively little danger.

The largest assembly we ever saw convened in the Sabbath-school was in that same Lowell, so slandered by this writer, and the school consisted chiefly of female operatives belonging to the mills.

We can scarcely regard such remarks as we have alluded to, and which we have taken as our caption, as honestly made. There are evils inevitably resulting from the separation of family influences that are to be lamented, but sometimes such change is for the better. The daughter, who has been living in utter neglect or disregard of the institutions of religion, is thus brought under a better influence. We would not fear to hazard something on the statement, that a larger part of the entire mass of factory operatives in New-England, regularly and voluntarily attend Sabbath-schools than are to be found in any community of equal numbers and similar ages in the Southern States. If any one will give us the figures in any large district South, we will furnish them from the North, and bring this to a test.

No, such evils are not eating out the vitals of New-England. They are safe, reasonably safe in the matter of good morals, and they are growing richer every year. When this is equally true of the South, we will listen to arguments which go to show that agriculture, as a sole occupation, is the chief end of man, and that all forms of mechanical industry are but sources of unmixed evil.

But we have not yet reached the climax, "for the 100 families of the Southern neighborhood are deprived of the profits of using over $8000 of their own cotton, tobacco, grain, etc., in order to let the 100 Northern families use over $5000 of it a whole year free of charge." Well, this is a hard case. The North ought to be ashamed of themselves, and as the good woman said of Napoleon Bonaparte, "ought to be talked to severely." But who lets them have this cotton and tobacco? Is it surrendered at the point of the bayonet? Oh no, it is all SENT NORTH BY ITS OWNERS, because they are not disposed to have any "factory villages," and think mechanic arts quite beneath them. What "insolence"! What "tyranny?" Our Southern friends cannot but see that this extract is only the eloquence of big and hard words. We defy any man to put the idea intended to be conveyed into cool, logical propositions, and to show its connections, without showing at the same time that the South, in this very condition of things, (so far as it is truly represented,) have their own chosen way—that the system of policy which produces these results, is adopted and cherished by Southern politicians, in spite of Northern resistance, in opposition to Northern statesmen and Northern votes in Congress, and that they are the inevitable results of confining themselves so exclusively to agricultural pursuits. To talk about "insolence" and "tyranny" under such circumstances, is more than mere nonsense, it is downright impudence, and does much to alienate the feelings of the people in different sections of the country.

We advise our Southern friends not to be duped by such idle pretences, nor to listen to those POLITICAL ADVISERS who live by inculcating such doctrines. Let them advertise in our pages for masons, and carpenters, and blacksmiths, and brick-makers, and machinists, and spinners, and weavers, and so on to the end of the chapter, and build their own mills, and manufacture "their own cotton and tobacco," and make handsome profits by the process, and raise the price of land on every mill stream, and far and wide

set into movement the whole system of mechanical industry, and our friend De Bow will then be crowded with the statistics of comparatively high prices, and profitable investments, and renewed lands, and reviving cities, and extended commerce. Let them defend and "protect" and cherish these efforts in their infancy, and then they will have the use of their own money and their neighbors' too, if they have any who refuse to go with them in these industrial pursuits. Let them use fewer harsh words, complain less, and accomplish more, and our word for it, they will grow rich and powerful, and in every such "community of 100 families" (if not too widely scattered) they too will have one or more "families supported directly from the United States Treasury," and with this additional gratification, that they do not enjoy these privileges at the expense of others. We would use a more moderate and truthful form of expression than is contained near the close of our extract, and say that the history of those States will never show a comparatively prosperous and an advancing community, as long as present systems and theories prevail.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

ECONOMY IN FARMING.

MR. EDITOR:—I observe in the July issue of your valuable journal, an article on economic cultivation, which ought to be set in letters of gold. No farmer of common observation but will admit its truth, but still there is that early training, those scenes of our boyhood, the veneration for our fathers who cultivated the same fields—these cling to us in our after lives.

But all things are changeable, and so with the soil; it behooves us to look about us when we can see the lee shore in the distance, and hear the low sound of the breakers as they dash on the shore. The present high price of labor and diminished crops will hardly balance the sheet. We have known men the past season not able to cut more than three hundred of hay per day. Value of hay, $2 50. Labor, $1 75. Profit to the land of 75 cents on one day's work. You may say this will do very well, but, brother farmers we will show you another picture. By another system of cultivation a man will cut and house one ton of hay per day; estimate labor, $1 75; value of hay, $15; leaving a profit to land of $13 25; difference between the two systems, $12 50. So much is the difference in two day's labor.

But this is only a small item in a farmer's book. There are other crops as important as hay. We take for instance, Indian corn. Many farmers make no more than twenty or twenty-five bushels per acre, and some, we are sorry to say, do not do that. The cost of working the crop, the land, etc., as labor is now, will not fall much short of $20. Estimate price of corn at $1 per bushel: $25. Fodder, $5, making $30, leaving $10 to the land. In the making of this crop, the value of the land is diminished rather than increased for succeeding crops.

Fifty bushels of corn can be made with ease by good cultivation at the North per acre. Cost of cultivation, land, etc., $32. Corn, $50. Fodder $10. Leaving $28 as profit to the land. A difference between the two

systems of $18 on one acre of land. This is quite a return for an extra outlay of $12. Now these are stubborn facts that will surely look the farmer in the face at the end of each year; but these are only two of the leaks in the farmer's ship. Many suppose that a farmer's thrift is told by the number of his half-fed animals about his yards. A grand mistake. Our motto should be, in this respect, more profit on one full fed animal than two half fed, which will be found by balancing accounts.

The earth is formed of atoms. So by taking care of small things, we make a large pile in the end. The droppings of a single ox once, is a matter you might say, of small consequence, but if repeated six times in twenty-four hours we get 1990 in a year, quite a pile. This being carefully composted with sods by the way-side, or mud from the swamp, rich in vegetable matter, and being combined with gasses, will produce four ears of corn for each dropping, making 7960 ears of corn at 230 ears per bushel, or 34½ bushels of shelled corn, and the land left in better condition for succeeding crops.

But perhaps, after all that may be said, that the waste of manure, and the injudicious application of the same to the soil, is the largest leak in the farmer's ship, and would end in a failure in most other pursuits.

A few days' extra labor in dull weather in the collection of turf, mud, and in fact, the waste of all things that are lying waste about almost all farms, would add largely to the amount of our stock of manure, and cover our fields with a bountiful harvest. This crop, judiciously spent, will place us in a situation to make another equally as good. Now, the greatest thing we want is to make ONE GOOD CROP, and after, if it is well spent, we can keep along. Our theory is, that the change of one plant will produce another.

EPPING, Aug. 6th. D. L. HARVEY.

STATISTICS FOR TENNESSEE AND KENTUCKY.

TENNESSEE has an area of 18,984,022 acres of land. Kentucky, 22,340,748 acres. Tennessee cultivates, 5,360,220 acres, and Kentucky, 11,268,270—more than double what Tennessee cultivates.

Tennessee has a white population of 829,210; slaves, 183,059: Kentucky, white population 779,828; slaves, 182,025—each State a population of twenty to the square mile. It is conceded by all who are posted up in statistics, that Tennessee stands at the head of the list in the great staple of these United States, to wit: Indian corn—Ohio second, and Kentucky third.

The products of each State for one year, stands for Tennessee thus—cotton bales, 194,532; tobacco, 20,148,923 lbs.; rice, 258,854 lbs.; oats, 7,703,086 bushels; wheat, 1,619,386 bushels; potatoes, 3,855,560 bushels; peas and beans, 369,321 bushels; value of farming implements, etc., $5,360,220. Live stock—mules 75,303 head; horses, 370,636; cattle, 750,765; swine, 3,114,111.

Kentucky stands as follows: cotton bales, 728; tobacco, 55,501,196 lbs.; rice, 5,688 lbs.; oats, 8,201,311 bushels; wheat, 2,140,822 bushels; potatoes, 2,490,671 bushels; peas and beans, 262,574 bushels; value of farming implements, etc., $5,169,037. Live stock—mules, 65,609 head: horses, 315,682; cattle, 753,312; swine, 2,861,163.

Manufacturing establishments for Tennessee—cotton goods, 53; woolen, 4; iron, 81; tanneries, 394. Home manufactory, $3,137,710.

For Kentucky—cotton goods, 8; woollen, 25; iron, 45; tanneries, 275. Home manufactory, $2,456,838.

Tennesse has produced two Presidents, eleven Representatives in Congress, and nine hundred and twenty-five old pensioners. Kentucky,—Presidents, nine Representatives in Congress, and six hundred and fourteen old pensioners. More than other States can show except New-York and Pennsylvania.

Total valuation of all live stock in the aggregate—Tennessee, $29,978,016; Kentucky, $29,591,387.

Capital invested in making whisky—Tennessee, $66,125; Kentucky, $298,900.—*Gazette.*

ENTOMOLOGY.

We continue our exhibition of this very important branch of science, and propose to present engravings of the more destructive kinds of insects. It ought to be observed that we base our statements principally upon the work of Dr. Harris, although we have consulted many others, found in the Astor Library and elsewhere. We take from them such suggestions as we deem valuable.

The following genera belong to the same order as those exhibited in our August number, viz.:

Coleoptera.

Osmodermia Scabia. Rough Osmodermia is a large insect, body broad, oval, thorax nearly round, color purplish black, and in the males of coppery luster. Head is punctured, concave on the top; the edge of the broad vizor in the males is turned up. Wing-cases thickly punctured, under side of body smooth, legs short and stout. They have a strong odor of Russia leather. Females are larger than the males, and are destitute of the coppery lustre, and are nearly an inch in length. During the day, these beetles secrete themselves in the crevices or hollows of trees, and are especially fond of cherry and apple trees. Their larvæ live in the hollows of these trees, feeding on the diseased wood. The grubs are fleshy, whitish, with a reddish hard-shelled head, and resemble the grubs of the common dor-beetle. In the fall, it forms an oval cell of the fragments of wood, cemented together, and comes forth in July in the form of a beetle.

Buprestis Femorata (of Fabricius) is of a greenish black color above, with a brassy polish, very distinct in the two large transverse, impressed spots on each wing-cover. The thorax has no smooth elevated lines upon it. Front pair of thighs is toothed beneath. Length, four-tenths to half an inch or more. Appears last of May to the middle of July. It especially frequents white oak trees, but is found in and under the bark of the peach. The grub bores into the trunks of these trees.

The Elateridæ; or Elators, or *Spring Beetles*, are related to the preceding. They are well known by the faculty which they have of throwing themselves upward with a jerk when laid on their backs, by an abrupt inflection of the anterior portion of the body. The body is of a hard consistence, usually rather narrow and tapering behind. The head is sunk to the

eyes in the fore part of the thorax. Antennæ of moderate size, and more or less notched on the inside like a saw. Thorax broad at base as the wing-covers, usually rounded before, the hinder angles sharp and prominent. The scutel of moderate size, legs rather short and slender, feet five-jointed.

The grubs of the Elaters live upon wood and roots, and some devour the roots of herbaceous plants. Some of them are long, slender, worm-like, resembling the common meal worm, nearly cylindrical, with a hard and smooth skin, buff or brownish yellow, the head and tail being a little darker. Each of the first three rings is provided with a pair of short legs. They have a short prop-leg behind to support the body. Others of this class are proportionally broader, not cylindrical but flattened, with a deep notch at the extremity of the last ring, the sides of which are furnished with sharp teeth. These are mostly wood-eaters.

In England these are called wire-worms, but they are not the American wire-worn, which is a species of Iulus. The English wire-worm has but six feet, while the American has many. In Europe, to get rid of these insects, they strow sliced potatoes or turnips along the field, which are collected every morning, with the insects, which greedily come to feed upon them. After their last transformation Elaters appear on trees, and fences, and on flowers, and on the tender leaves of plants. They creep slowly, and, when touched with the hand, generally fall to the ground. They fly by night and by day.

The Genus ELATER (of Linnæus) has been latterly sub-divided into smaller groups.

Elater Ocularius (of L.) now called Alaus, is the largest of our spring beetles, and measures from one and one-fourth inches to one and three-fourths in length. Color black, thorax oblong square, nearly one-third the length of the whole body, covered above with a whitish powder, and with a large oval velvet black spot, like an eye, on each side of the middle. Wing-covers marked with slender, longitudinal, impressed lines, and spangled with numerous white dots. Under side of body and legs covered with a mealy white powder.

It is found in trees, fences, and buildings, in June and July. It undergoes its transformations in the trunks of trees.

The grubs are reddish yellow, proportionally broader than the other kinds, and much flattened.

All the beetles named above belong to the general tribe of LEAF-HORNED BEETLES, so called on account of the leaf-like joints with which the end of their antennæ is provided.

We now come to a class called SERRICORN, or Saw-horned, from the appearance of the tips of the joints of their antennæ, which project, more or less, on the inside, somewhat resembling the teeth of a saw.

Buprestis Diverca ; (or, Divaricata of Say,) when in the grub state attacks the cherry and peach trees. The beetles are copper-colored, sometimes brassy above, and thickly covered with minute punctures; thorax, slightly furrowed in the middle. Wing-covers finely marked with numerous fine irregular impressed lines, and small, oblong square, elevated black spots. They taper behind. Middle of the breast furrowed. Males have a little tooth on the under side of the shanks of the intermediate legs. Length seven-tenths to nine-tenths of an inch. They are found on the cherry and peach trees from June to August inclusive.

Elater Cinereus (of Weber) now called Melanotus, or Ash-colored Elater. It is six-tenths of an inch in length, dark brown, covered with short gray

hairs, thorax convex, wing-covers marked with lines of punctures, resembling stitches. Their claws resemble little combs, thorax short and rounded before, and body tapers behind. It is found on fences, trunks of trees, and in paths, in April and May. They pass the winter under the bark of trees. The grub lives on wood.

Elater Communis, (of Schönherr,) now Melanotus, is very common, resembles preceding, but smaller, seldom exceeding a half an inch in length, lighter colored than the preceding, thorax a little longer, less convex, and having a slender longitudinal furrow in the middle. Appears in April, May, and June. The transformed beetle may be found under the bark of trees, in autumn, where they pass the winter.

Elater Apressifroas, (of Say,) now Ludius, so named from the vizor being pressed downwards over the lip. Body is slender and almost cylindrical, deep chestnut brown color, appearing gray from the many short yellow hairs which cover it. Thorax of moderate length, not much narrowed before, convex above, hinder angles very long and sharp pointed, and, in certain lights, of a brassy hue. Wing-covers finely punctured, with slender longitudinal lines impressed on them. Claws not toothed beneath. Length, four-tenths or five-tenths of an inch; females larger.

Elater Obesus, (of Say,) now Agriotes, is a short, thick beetle, dark brown, covered with dirty yellowish hair, which, on the wing-covers, is arranged in stripes. Head and thorax thickly punctured, wing-covers punctured in rows. Length three-tenths of an inch. It is seen in April, May, and June, among the roots of grass, underneath boards and rails which lie on the ground, and on fences. Kollar says: "This beetle is especially injurious to oats, causing the leaves to become dry and fall off. It destroys whole fields of corn by attacking the roots.

The larvæ are slender, linear, fleet, shining, smooth, slightly hairy and brown. The last ring of the body terminates in a toothed forceps. It resembles the meal worm.

We now reach the Weevil tribe, of which there are many kinds. They are distinguished from the preceding and from other insects by having the forepart of the head prolonged into a broad muzzle, or a snout, more slender, in the end of which is the opening of the mouth. Their name is suggested by this feature, viz.:

Rhynchophoridæ; or *Snout-bearers*. They are of small size; antennæ are on the muzzle or snout, knotted at the end, feelers very small, and generally concealed in the mouth. The abdomen is often of an oval form, wider than the thorax. Legs short, and the soles of the feet short and flattened. They live upon bark, stems, leaves, buds, flowers, and fruit, and are often very destructive. They fly by day; though some kinds have very short wings, and are unable to fly. They walk slowly, and when alarmed, they turn back their antennæ, fold up their legs, and fall from the plant. They use their snout in eating and in boring.

Their grubs are short, fleshy, whitish, and without legs. The head is covered with a hard shell, rings of their bodies very convex, or hunched. Jaws strong and bony. Most of them are transformed within the vegetable on which they feed, though some of them enter the ground, and there undergo the change which converts them into beetles. Seed peas are often found with holes in them, the work of these insects; and perhaps the insect is still to be seen within the substance of the pea in spring in the form of a small oval beetle, one-tenth of an inch or more in length, rusty black, with a white spot on the hinder part of the thorax, and several dots behind the

middle of each wing-cover, and a white spot, resembling a T in form, on the exposed extremity of the body. It is the *Bruchus Pisi*, of Linnæus, and is familiarly known as the Pea-bug. The larvæ feed upon the pea in its soft state. The grub is changed to a pupæ in the autumn, and during the winter becomes a beetle, and bores a passage sufficiently large for its egress. In laying the egg, the beetle pierces the pulp of the pea, leaving a small puncture, the place of which is rendered visible by its discoloration, the spot on the pod corresponding to that on the pea. BRUCHIDÆ is the name of the Weevil tribe.

Various plans are proposed in checking the ravages of this insect. One is, by keeping seed peas in a tight vessel, more than one year, before planting them. Another, immersing them in hot water before planting. Late planting has been found effectual.

The crow, blackbird, and the oriole devour them, splitting open the pea for this purpose.

CURCULIONIDÆ, or the *Curculio* tribe, is extensive and highly destructive, attacking fruit and forest trees, and making great havoc. Of the latter kind, we shall treat hereafter. The falling of unripe plums, cherries, apples, etc., is caused by the grub of these insects.

Rhynchænus, (now Conotrachelus,) *Nenuphar*; or Plum Weevil. This is the Rh. Argula, of Fabricius. Their color is dark brown, variegated with white, yellow, and black spots; thorax uneven. They are found as early as 30th of March, and continue through the season of fruiting. They are from three-twentieths to one-fifth of an inch in length, exclusive of their curved snout, which is larger than their thorax, and when they are at rest is bent under their breast. Color dark brown, variegated with white, yellow, and black spots; thorax uneven. Several short ridges may be seen on their wing-cover, those on the middle of the back forming two considerable humps of a black color, behind which there is a wide band of ochre yellow and white. Their thighs have two little teeth on the under side.

As soon as the plum is set, they pierce it with their snout, lay an egg in the puncture, and thus go from plum to plum over the tree. The irritation produced by these punctures makes the young fruit gummy and diseased, and it falls off before it is ripe.

When disturbed or shaken from the tree it resembles a bud in its general appearance, especially when feigning death, as it does when it is alarmed. The grub, which is a small, yellowish, footless white maggot, leaves the fallen fruit, enters the earth, changes into a pūpa, and in the first brood comes to the surface again, in about three weeks, in beetle form, to propagate its species and destroy more fruit. It has not been decided whether the latest generation of the weevil remains in the ground all winter in the grub or in the pupa state. Dr. E. S. Sanborn, of Andover, Mass., asserts that the grubs, after having entered the earth, return to the surface in about six weeks as perfect weevils, which must remain hidden in crevices until spring.

Some of the remedies recommended for preventing the ravages of these insects are absurd, such as tying cotton around the trees in order to prevent them from ascending, since they are furnished with wings, and fly from tree to tree with the greatest ease. Among the remedies at present in use, one is to cover the fruit with a coating of white-wash, mixed with a little glue, applied by means of a syringe; another is to spread a sheet upon the ground under the tree, and then jar the principal branches suddenly, with a mallet red with cloth, so as not to bruise the bark, when the perfect insects will nto the sheet and feign death, and may be gathered and destroyed.

Hogs are sometimes turned into plum orchards, where, by eating the fallen and diseased fruit, they materially lessen the evil. Coops of chickens placed under the trees, and the branches often shaken, the insects fall, and are eagerly seized and devoured. All fallen fruit should be gathered up several times in the course of the season and burnt, or given to hogs, or destroyed in some other way. By so doing, thousands of the grubs which have not yet left the plums are destroyed.

Peaches, nectarines, cherries, and even apples, pears, and quinces, it is said, are attacked by this insect.

The large warts of a black color, as if charred, seen on many plum trees, are supposed to be produced by the punctures of these beetles, and to be the residence of the grub.

The most efficient security against these insects is the shaking of the trees every morning and evening while they remain in beetle form. When thus disturbed, they fold their legs and fall, and may be caught in a sheet, and, being properly confined, thrown into the fire. All the fruit that is pierced should be gathered as soon as it falls, and after being boiled may be fed to swine. The diseased limbs should be treated with a knife, and the diseased parts be burned, early in the season.

Calandra, (now Sitophilus,) *Oryzæ*, or the Curculio Oryzæ, of Linnæus, is a small insect resembling the wheat weevil, about one-tenth of an inch in length, exclusive of the snout, having two large red spots on each wing-cover. This weevil lays its eggs on the rice in the fields as soon as the grain begins to swell. The parent bores a hole into the grain, drops a single egg, and thus goes from grain to grain. When the grub is grown, it bores a hole through the grain, artfully stopping it with the flour of the rice, and are in the winter changed to pupæ. The following spring they become beetles and come out of the grain.

These beetles can be removed from the rice by winnowing and sifting the grain in the spring.

Another beetle has been very destructive to pear trees. The leaves and branches of the tree suddenly wither and die ere mid-summer. These effects have been traced by some scientific gentlemen to the depredations of a small beetle, only one-tenth of an inch in length, according to Dr. Harris *incorrectly* named by Prof. Peck,

Scolytus Pyri. Its color is deep brown, antennæ and legs paler, thorax short, convex, rounded, and rough before. Wing-covers minutely punctured in rows, and they slope off very suddenly and obliquely behind. Shanks widened and flattened towards the end, set with a few teeth externally, and end with a short hook. Joints of the feet slender and entire.

The only remedy consists in cutting off the limb *below the disease*, and before the insect makes it escape. This should be attended to in the month of June.

Saperda Bioittata. The larva of this beetle is the apple tree borer, whose ravages have been so extensive through New-England and the Middle States. The upper side of the body is marked by two white stripes, between three of a light brown color, the face, antennæ, legs, and under side of the body being white. Length one-half to three-fourths of an inch. It deposits its eggs in June or July, being laid upon the bark near the root during the night. During the day it rests among the leaves. It attacks the apples, the quince, and several fruit trees. The larvæ are fleshy whitish grubs, nearly cylindrical, and tapering from the first ring to the end of the body. Head small, hairy, brown. The first ring is much larger than the others. The

next are very short, and all these are covered with punctures and very minute hairs. The 4th and on to the 10th are furnished with two fleshy warts. No legs can be seen. The larva state continues two or three years. The final change takes place within the wood, and near the bark, about the first of June, and the beetle gnaws through the surface and escapes in the night.

Several remedial operations are practised. Thrusting in a wire, and thus destroying the insect, has been long practised. Sometimes the grub is cut out with a knife or gouge.

Saperda (now Oberia) *Tripunctata*, of Fab. This insect attacks the tall blackberry and raspberry. It differs from the preceding in having a larger head in proportion, in being cylindrical in the middle, and thickened a little at each end. The beetles are very slender, of cylindrical form, black, except the forepart of the breast and the top of the thorax, which are rusty yellow; and generally on the middle of the thorax are two black elevated spots, and there is a third dot on the hinder edge close to the scutel. Length of the beetle from three-tenths to half an inch. Its transformations are completed in July, and it lays its eggs early in August on the stems of the shrub, near a leaf or twig. The grub burrows directly into the pith, and consumes it for several inches, producing the death of the stem.

Phyllophagous, or *Leaf-eating Beetles*, are numerous, but are comparatively harmless, and are so easy of access that their destruction is not so difficult. They generally are without a snout, with short legs, and broad-cushioned feet, eyes nearly round and prominent. Body in some oblong, and in others oval, broad, and very convex. Of these the

Hispa Rosea (of Weber) frequent apple trees. They are of a deep tawny or reddish yellow color, marked with deep red lines and spots. They appear late in May and early in June.

Cassida aurichalcea (of Fab.) is of a brilliant brassy or golden luster, but blackish beneath, with legs of a dull yellow, and is found on the stalks of the sweet potato and the convolvulus, appearing in May and June. The larvæ are broad, oval, flattened, dark-colored grubs, with a fring of stiff prickles round the thin edges of the body, and have a long, forked tail, which is turned over the back. They become purple early in July, and soon after are transformed to beetles, which are broad oval, and about one-fifth of an inch in length.

Galeruca rittata, or *criocetris vittata* of Fabricius, the striped Galeruca, or cucumber bug. This insect is well known by its ravages upon melon and cucumber vines in May, and early in June. Several broods are produced during the summer. Color: light yellow, head black, a black stripe on each wing-cover, inner edge of which is also black, the abdomen, part of forelegs, knees and feet of the other legs, are black. Length, less than one-fifth of an inch.

Among the preventives that have been tried, with more or less success, are sprinkling the vines with tobacco and red pepper, watering them with a solution of Glauber's salts, or of tobacco, or elder, or walnut leaves, or of hops. The use of charcoal dust is highly recommended, and also of Scotch snuff and sulphur. Lighted pine knots, or staves of tar-barrels, stuck in the ground rounds the hills, in the night, attract them and thus destroy them. A covering of millenet, stretched over a frame, is the surest.

The Genus Haltica, one of the *Halticadæ*, contains a small, black, jumping insect, very injurious to cucumbers in their early growth. The body is oval and very convex above, thorax, short; head, broad; antennæ, slender, about half the length of the body, and implanted near the middle of the forehead; the hindmost thighs are very thick; surface of the body smooth, and often brilliantly colored.

These beetles eat the leaves of vegetables, preferring plants of the cabbage, turnip, mustard, radish, and other cruciferous plants. The Turnip Fly is one of the Halticas. Two ounces of sulphur mixed with a pound of turnip seed has sometimes proved a security against this insect.

Haltica pubescens, or the Cucumber flee-beetle, is one-sixteenth of an inch long, black, with clay-yellow antennæ and legs; body above covered with punctures, arranged in rows on the wing covers, with a deep transverse furrow across the hinder part of the thorax.

Haltica striolata, or the Wavy-striped flee beetle, may be seen in great abundance on the horse-radish, mustard, turnip, etc., in May.

Haltica chalybea (of Iliger) frequents grape vines, the buds and leaves of, which it destroys. It is a greenish-blue color, underside dark green, antennæ and feet a dull black, about three-twentieths of an inch long. It appears in April and early in May. A second brood is found late in July.

Lime dusted over the plants when the dew is on them is useful in destroying them; also, alkaline solutions, or a pound of hard soap in twelve gallons of water, applied twice a day, with a watering pot. Kollar recommends an infusion of wormwood.

The following is also recommended, which is also said to be good on rose-bushes:

Get 4 lbs. quassia chips and pour four gallons of boiling water over them in a barrel. Cover to keep in steam, and stand 12 hours; then fill the barrel and water daily.

CANTHARIDIDÆ.—The Cantharides, or Blistering beetles, form a distinct class. They are distinguished from the preceding beetles by their feet, the hindmost pair having only four joints, while the first and middle pair are five-jointed. Of these

Cantharis vittata, or Striped Cantharis, has obtained the name of the *Potato Fly*. It is a dull tawny yellow, or light yellowish red color above, with two black spots on the head, and two black stripes on the thorax and each of the wing covers. The underside of the body, the legs, and antennæ, are black and covered with a grayish down. Length, about half an inch. In the Middle States it is very common.

Cantharis cinerea, or Ash-colored Cantharis, is often found on potato vines about 20th June and after. Its form is more slender than the preceding.

A black Cantharis is also sometimes seen in potato-fields. It is the *Lytta atrata* of Fabricius.

Other blistering beetles occur, but are not especially injurious to fruits or flowers. They may be destroyed by being caught and immersed in scalding water, and then sold to the apothecary.

YEAR-BOOK OF AGRICULTURE.—We publish in our advertising sheet the prospectus of the Year-Book of Agriculture, to be issued by Messrs. Childs & Peterson, 124 Arch street, Philadelphia. We have no other information on the subject than is furnished by this prospectus, and a printed circular which accompanied it; but the plan is certainly very capital, and carried out, as we are justified in expecting it will be, it ought to receive the attention of every agriculturist. We recommend the work to the examination of all our readers.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

FOREST TREES OF NICHOLS, N. Y., AND VICINITY.

Acer Rubrum.—Red Maple, or Soft Maple.—No. 1.—The Red Maple is found here, from the lowest creek flats to the tops of the highest hills, several hundred feet above the stream; and from sixty to seventy-five feet high, sometimes two feet or more in diameter, but generally less. The wood is close grained, of a reddish color. Sometimes the variety called Curled Maple occurs, in which the wood is winding or twisting, which renders it very hard to split. I have frequently been fifteen or twenty minutes spliting a log of firewood that would not have taken more than five minutes if it had been straight grained. By a close attention to the grain of the wood, when cutting down the tree, this can be remedied. The wood of this tree is very valuable for fuel, and for mechanical purposes it is best to saw into scantlings, four and a half inches square, and is worth now $8 per thousand—has been generally about $10.

The leaves of this maple are from five to six inches in length, and near that in width, and frequently not half that size; and from three to five lobed, and serrated, or notched on the edges; of a beautiful green color on the upper side, and a whitish pubescence on the under. These leaves turn up before a storm, and show the white side in a beautiful manner. Stems to the leaves from two to six inches in length, and of a reddish color; the young sprouts are of the same color. Flowers this year were in full bloom on the 24th of April, and fruit ripe on the 17th of June, contrary to the opinion of our venerable botanist Dr. J. Torrey. He says fruit ripe in September. Flowers red, and in great numbers, this year appearing a number of days before the leaves, giving the trees a beautiful appearance; flowers and fruit on stem about two inches in length, fruit of a reddish color in clusters, two seeds always attached together, base to base, with a wing on one side, near one inch in length.

The Red Maple makes a beautiful shade tree, and is set out along a number of public highways. The branches incline toward the body of the tree in a beautiful manner. The wood of the Red Maple, like the other species of maples, if left exposed to weather, soon decays, and the stumps from the smaller class of trees sprout very much two or three years. Cutting the sprouts either in the longest days or later part of August will destroy them, and the stumps in eight or ten years will rot out. The young of Red Maple has a dark smooth bark; the old tree deep furrowed and rough.

Acer Saccharinum.—Sugar Maple, Hard Maple.—No. 2.—This tree grows in this vicinity on the creek flats, also on the high hills in all elevations and situations, from sixty to eighty feet high, and two feet, rarely three feet, in diameter. Bark of a light color, and quite rough when full grown. Wood yellowish white and very hard, generally quite knotty after getting up twenty or thirty feet. The wood of this tree is of the best quality for fuel and for mechanical and cabinet-ware, especially when it is in the form of Curled or Birdseye Maple. It is then used for the front of chairs, bureaus, etc. The lumber from the Sugar Maple is worth here about $10 per thousand; rare kinds much more. From the sap of this tree, the common Maple sugar is made. The sap is drawn off by cutting a slanting box five or six inches long and two feet deep, about two feet from the ground, and insert a

spile in the lower corner of the box. Another method is to bore in near the ground with a three-quarter inch auger in which a spile is inserted. The sugar is made by boiling the sap in kettles. A good-sized tree will make from ten to twelve pounds of sugar in a year. On account of the low price of cane sugar, there has been but little Maple sugar made in this vicinity for the last ten years, and it is worth now from ten to fifteen cents a pound.

The season of sugar making is generally from the 20th of February to the 15th of April.

This is one of the most beautiful shade trees we have in this vicinity; and is generally planted by the side of all the public highways and yards. The branches generally grow so as to form a pyramid, and are generally loaded with the most beautiful leaves. The Sugar Maple is quite a slow grower, and its extreme hardness makes it bad to cut into firewood, especially if cut down several months before it is made into wood. In clearing new land of this kind of trees, it is often the case that they fall across one another, when they are burned into, and so worked into short lengths without much labor. In burning a new fallow the fire will often continue in a large tree of this kind fifteen or twenty days. Its leaves are truncated, and somewhat cordate at the base, a beautiful green on the upper side, and whitish on the under, three to five lobed; lobes with a slender acumination, leaves from four to five inches long and a trifle more wide, especially across the lobes. Stems to the leaves from two to six inches long. Flowers appearing this year on the 1st of May of a beautiful yellowish green color. I judge the fruit will be ripe about the first of September. The fruit is of the same shade as the Red Maple, and about one-third larger. Stems to the fruit are about two and a half inches long.

Acer Pennsylvanicum.—Moose Wood, Striped Maple.—No. 3.—This small Maple, like the others, is found on high and low land, and is quite scarce. It is seldom more than twenty-five high, and from four to five inches in diameter. The bark is smooth, of a dark green color, with sometimes a a black stripe, with the ends of the branches with white stripes, giving the tree a beautiful appearance.

Leaves five to seven inches long, and from four to five inches wide, frequently near twice that size; three lobed, with end of the leaves running to a sharp point, edge of the leaves finely notched. Flowers appear about the 1st May, and fruit ripe about the 1st of September. Flowers much larger than either the Sugar or Red Maple, and of a beautiful green color. Fruit in clusters, on long stems; from eight to fourteen on a stem; yields a sweet sap almost equal to the Hard Maple.

Acer Spicatum.—Mountain Maple.—No. 4.—This Maple is a shrub or small tree, growing from four to sixteen feet high, and from two to three inches in diameter. The bark of a light color. In this vicinity it is found growing only along small streams and in shady places. Leaves from three to four inches long, and about that wide. Many of them not half that size; the larger leaves, three lobed, and the smaller with no lobes; edge of leaves deeply notched. Flowers appeared this year about the 15th of June, on long stems, from thirty to fifty on a stem, of a white color. Fruit reddish, much smaller than any of the other species, wings at a more obtuse angle than the other species, and a half inch long. Trees this year loaded with fruit when not five feet high.

NICHOLS, July 30, 1855. R. HOWELL.

VARIETIES OF COTTON.

The different kinds of cotton which are imported and used in Great Britain have been examined under the microscope by Dr. Ure and by Mr. E. Wilson. To their observations we are indebted for the following measurements. In examining a sample of cotton, it is usual to take a portion of it between the forefinger and thumb, and laying the portions as they are successfully drawn out back again on and parallel to the filaments from which they have been drawn out; and repeating this process several times, small tufts are formed, in which the respective lengths of staple may be observed.

The fibres of cotton, when drawn out from the mass in which they appear entangled, display so many irregular twists as to give them a jointed appearance, and, as Mr. E. Wilson observes, "in this state they resemble a string of oval beads, pointed at each extremity, and connected by their points."

The entire fibre appears to taper finely to both ends, that which is adherent to the seed being somewhat the thickest. Under the microscope the fibre is observed to be continuous, moderately twisted, flat, ribbon-like, clear, and transparent in the middle, and obaque towards each margin. The finer and more uniform the fibre, and more inclined to twist, the better is it suited for spinning into fine yarn. But if the fibres are short, broad, and formed of flimsy ribbons, they are less suited for machine spinning, though they may yet, as before mentioned, be twisted into thread by the delicate fingers of the Hindoo.

The value of cotton depends on the length, strength, and fitness, as well as on the softness and equality of the fibre. But these essential qualities are modified by color and cleanliness, that is, freedom from knots and impurities, so that there may be less waste in spinning. Formerly color had great influence, but now the great distinction is into long-stapled and short-stapled. The different kinds of cotton differ from each other not only in the above properties, but also in considerable differences in quality between different samples of the same kind of cotton. "The finest quality of Sea Island is sometimes worth three times as much as the common quality of the same class. The variation of quality in most of the other denominations is from 20 to 25 per cent., and in none of them is more than 50 per cent." These are sometimes divided into three or four qualities, as ordinary, middling, fair, and fine. At other times these are still further sub-divided, as into inferior, ordinary, middling, good-middling, middling-fair, fair, good-fair, fine, or good and fine. "Except the better qualties of Sea Islands there is no sort of cotton which is now confined it its use to any peculiar or exclusive purpose. By mixing different sorts together, and by careful management in preparing the mixture for spinning, the manufacturers can now make a substitute for almost any particular kind of cotton, except the very best. It is only requisite to add, that the long-stapled cottons are generally used for the twist or warp, and the short-stapled for the weft."

Sea Island, or long-stapled cotton, the most highly esteemed of the cottons, is remarkable for the length and fineness of its fibre, as for its silky softness. Among white cottons it is distinguished by a slight yellowish tinge of color. This kind sells in England from eighteen pence to two shillings, and has sold as high as five and seven shillings a pound. The quantity is limited, from the peculiarity of physical circumstances required for its pro-

duction. The fibres are equable, about 1½ in length, and examined under the microscope, about $\frac{1}{2000}$th of an inch in diameter, formed of flattened cylinders transparent in the middle, obaque towards the margin, and more or less twisted. Dr. Ure has observed some kinds crimped transversely with irregular bandages, and some with flimsy ribbons and warts which adhere to the sides of the filaments, called neps by spinners. Mr. Wilson describes the Sea Island as thick and narrow, but looking the finest of all as seen with the naked eye. This kind is employed for spinning the finest yarns.

Upland, or short-staple cotton, under which names are now usually included the produce of the interior of Georgia and Carolina, as well as of Alabama, Mississippi, Louisiana and Tennessee. It used to be, and is sometimes still called *Bowed*, from the cotton of Georgia having been formerly cleaned with the Indian cotton-bow. Though shorter in the staple and unequal, this is white in color, much esteemed, and forms the bulk of the cotton of commerce. The staple is one inch to one and a quarter inches in length. The best kinds are fit for spinning as high as No. 50, some higher; the shorter kinds are worked up into No. 30, and other coarser yarns; but mixed with good Egyptian or with Pernambuco cotton, even these can be spun into higher numbers. Under the microscope, the fibres appear less twisted than others, some as cylindric fibres with many twists, of the width of about $\frac{1}{1400}$th of an inch; thin and broad.

Egyptian.—The best Egyptian cotton ranks next to Sea Island in quality and length of staple, though it is not usually so well cleaned. It was only about the year 1821 that the Pasha began the cultivation, by importing seed from America and the Mediterranean and from Brazil. These different kinds may, therefore, be met with in cultivation there, though the Sea Island yields the best kind of cotton, called *Maho*, which is used here like that kind for the finest yarns. It has a staple of 1¼ to 1⅜ inches in length, from $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch in breadth, uniform, spiro-cylindrical, thin and broad. Some excellent cotton has been sent from Port Natal; that from the island of Bourbon used formerly to be much esteemed. Some has also come from the west coast of Africa.

West Indian.—The West Indies supplied England with the largest quantity of cotton in the eighteenth century; but the cultivation was neglected when sugar became more profitable, and the imports have greatly fallen off. But the cotton is long-stapled, silky, and may be produced of a quality equal to Sea Island. Bourbon cotton is the same species that is cultivated in the West Indies. The cotton of Porto Rico was at one time considered to be the best; that of St. Domingo has been spun into No. 100 yarn; and some of the finest cotton ever grown was in Tobago by Mr. Robly, between 1789 and 1792. The cottons of Barbadoes, Guadaloupe, and Jamaica, were also highly esteemed. Bryan Edwards (Hist. of the West Indies, 1793,) mentions a green-seeded cotton, from which the cotton can only be separated by hand. Inferior kinds, or shorter-stapled cottons, may, therefore, be imported from these islands. Dr. Ure describes the St. Domingo cotton as composed of narrow twisted ribbons, from $\frac{1}{1000}$th to $\frac{1}{1200}$th of an inch, with a few flattened cylinders and some spiry fibres.

South American Cotton.—In the year 1780, Mr. Bryan Edwards states that "the finest grained and most perfectly cleaned cotton which was brought to the English market was, he believed, that of the Dutch plantations of Berbice, Demerara, and Surinam, and of the island of Cayenne;" and that these cottons sold at that time for two shillings a pound. The first importations of cotton are stated to have first taken place from Maranham in the

year 1781. The Pernambuco was soon afterwards sent, of so fine and superior a quality as to be highly esteemed, and its price ranked next to the Sea Island. The staple is long and fine, generally well cleaned, glossy, some with a yellowish tinge; spins into a stout yarn, and is esteemed by hosiers. It continues to be imported into England from all these places, as well as from Bahio, Maceio, Para, also from Peru; inferior qualities from Carthagena. The fibre is in length about $1\frac{6}{10}$ to $1\frac{1}{5}$ of an inch; is cylindrico-spiral, about $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch in diameter; some with a few twisted ribbons and warty excrescences on the sides of the filaments.

East Indian Cotton.—Considerable, though varying quantities of cotton, we have seen, are imported from India. It varies a great deal as obtained from different districts; is esteemed for its color, though all is short-stapled, and generelly sent in a dirty state to market. In those of this country it is known by the name of Surats, Madras and Bengal, while the name *Surats* is often used as a general term for Indian cottons. Some of this cotton is of good quality and fit for general purposes, while the great mass is only bought when American cotton is dear. The cottons of Surat, of Broach, and of Berar are all included under the name of *Surats*, forming the kinds which are most esteemed here. The cottons of Cutch, of Candeish, etc., are likewise exported from Bombay, whence also England obtains the cotton of Coompta, which is produced in the southern Mahrattaern country and in the most southern part of Berar. These are also cottons naturally of good quality. Under the head of Madras, the cottons of Salem, Coimbatore and Tinnivelly are included, which rank higher than the cottons of Bellary, Guntoor, and the ceded districts. Bengal cottons include those from the northwest provinces, from Bundlecund, as well as what is imported from Nagpore and Berar. The latter kinds are of the same quality as are exported from Bombay; but they are generally used up by the weavers of the upper parts of the Bengal presidency. Some Bourbon cotton is also exported from Madras, the produce chiefly of the southern provinces of the peninsula; though esteemed, it is inferior to the original Bourbon. The Indian cottons, under the microscope, appear less spiry; a few flattened cylinders, with many flimsy ribbons and warty excrescences, varying in diameter from $\frac{1}{600}$th to $\frac{1}{1000}$th of an inch; some are $\frac{1}{1500}$th to $\frac{1}{2000}$th of an inch. In length differing from $\frac{17}{20}$ths to $1\frac{1}{10}$th of an inch.

Mediterranean Cottons.—Much cotton is cultivated in the countries surrounding the Mediterranean Sea. It is generally the produce of the Indian species of plant, though American seeds have been introduced into some other places as well as into Egypt. These are cultivated in Asia Minor, in parts of Greece and the islands; generally known as Levant, some as Smyrna cottons. The Italian cottons are produced in Sicily, in Calabria, near Naples, and in Malta. The cottons of Sicily, of Calabria, and of Castellamare, are the best, and are probably the produce of an American species. A Nankin cotton is cultivated in Malta, and used there. Most of these cottons are employed for native manufacturers in the countries where they are grown, or are exported for the use of the manufacturers of the continent. They are seldom brought to Great Britain, except when the price of cotton is very high.

Though we have noticed the appearance of the filament of cotton under the microscope, it is to be observed that the fingers of practised brokers have a delicacy of touch that enables them to judge most correctly of the fineness and length of staple, and some will pronounce, even in the dark, on the value of cotton. But the different varieties might yet be subjected with

benefit to further microscopical examination, to ascertain the effects of the different processes of culture, in the several soils and climates of different countries, on the length, breadth, and smoothness of the fibre.—*De Bow's Review.*

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

EDUCATION OF FARMERS.

The notions are becoming obsolete that the cultivation of the mind and the cultivation of the soil are antagonistic, and that education is due only to "the professions."

It belongs to our strong-minded farmers to work a still greater reform in their midst. As improvements are made in agriculture, it becomes necessary, if a farmer would take respectable rank in his class, that he should be intelligent upon subjects relating to his department of industry; for the belief is becoming more popular every day, that the farmer who has his mind well stored is pretty sure to have his barns well stored also. This belief, perhaps, more than any other cause, has aided in carrying the weekly and monthly periodical to the country fireside, and made sale for thousands of volumes on agricultural science.

As a thirst for knowledge increases with its gratification, study and research in one department of science naturally creates a desire to extend the range. If farmers will encourage such desires in their children, mental culture and refinement will be found to adorn the social circle in the country as well as in the city. Indeed, there is no class more favorably circumstanced than the agricultural, for enjoying the true pleasures which general intelligence affords. With homes of taste where they might enjoy their hours of repose, with companionship that elevates and refines, the sons of the farmer would not think their dignity and respectability increased by being permitted to stand behind a city counter measuring laces and silks.

It is quite common for complaints to be uttered, that country people do not hold the position which they ought; that they are looked down upon by other classes. For this farmers are themselves responsible to a great extent. Let them manifest as much zeal and care upon the improvement of their families as they do upon their blooded stock; let not the poetry of life be all crushed by sweat and toil; let them give liberal patronage to literary and scientific institutions; then will the wealth which an intelligent understanding of the principles of agriculture brings, and the power which knowledge gives, place the farming class where no derogatory comparisons can, with truth, be offered.

The discoveries of the last few years have elevated agriculture almost into the rank of exact sciences. Certain conditions being given, the intelligent farmer knows precisely what to do in order to accomplish desired results.—Proofs of the advantages which such enjoy may be deduced from the many letters which are daily published, written from various parts of the country, asking for information concerning the treatment of lands etc. Did the writers of many of these letters possess, in connection with their practical skill,

a knowledge of the organized sciences and their handmaid, Chemistry, they would be capable of giving the information sought instead of asking it.

The great principle upon which scientific agriculture is based, is this: "not a particle of matter can be created, not a particle can be lost." It is on this principle that manures are applied to soil, that crops are varied, that old and exhausted lands are renovated.

But the economical and intelligent husbandman has no exhausted fields. He knows the elements of plants to be few, and the stimulants he can generally command, to a great extent, from his own resources. In studying the laws of chemical and vital philosophy, he has wide scope for observation, and for controling the processes of decomposition and recomposition to the accomplishment of specific ends. From Spring to Autumn, from Autumn or Spring, his broad acres are his laboratory and observatory. He sees in the death and decay of one season, elements for the beauty, brightness, and wealth of the next.

In this country there is no position too high for the aspirations of the intelligent and successful farmer. Has he by his own toil subdued the land, and by his acquaintance with nature's laws reaped golden harvests, he finds himself secure in the possession of two means for controlling men. First, that willingness, "to know his work and do it," which Carlyle says is the mission of every man, and which forms a strong link of brotherhood with those who are delving. Second, he possesses wealth which has a charm to open a passage to the hearts of a certain class. If, added to these, he has that intelligence which commands the respect of cultivated persons, he possesses perhaps greater power than any other man for gratifying an honorable ambition. The people regard him as their own, they look up to him, and are willing to crown him with the wreath of honor. JUNE ISLE.

MANURES.

HOW THEY ACT—HOW TO BE APPLIED.

WRITERS on this subject are in the habit of classifying manures under different titles, as stimulants, fertilizers, etc.

There is, however, an objection to this, because such an arrangement seems to give the impression that the earth is, like the human body, acted upon through nerves which excite or which produce stupor in the system, as one or another application is made, and again through other organisms which actually yield new elements, suited for the actual transformations needful, in order to assimilate its substance to the plants, actually to unite or annex these prepared elements to the structure of the plant. The views of any writer, in reference to these matters, are mere theories, often crude and inconsistent, or often are nothing better than hypothesis or mere supposition.

Certain facts, however, are pretty well ascertained, and under this class we may place the following:

1. Some kinds of manure act indirectly by producing chemical changes in the soil with which it comes in contact. They may dissolve or render soluble what was before insoluble, and thus render fertile what was useless.

2. Some applications may produce a reverse action, and by transmitting into insoluble combinations what was before soluble, produce barrenness.

3. Some applications produce a change only on the physical condition of the soil, acting precisely as the spade does; namely, causing the earth to become porous, or pulverulent and light, in contradistinction to a consolidated, adhesive mass. If the ground is in the latter condition, neither the roots nor the rain can find their way into it. Like hardened clay, it resists the effect of the one and sheds the other.

4. A given element, necessary for certain chemical or vital actions, may be wanting, and the fertility of a soil may be increased by the proper addition of this deficiency.

But when we begin to classify different manures, among these different agencies, we are far from actual demonstration. In a hundred experiments, we may find ninety corroborating our favorite theory. The other five are absolutely and irreconcilably inconsistent with it. The received process, in such case, is to announce that our theory is confirmed by numerons experiments, and to treat the results of the other five as some mistake, or as tainted with error or imperfection in its management.

All knowledge is useful. Each branch of science is indispensable in its place. But it is not unfrequently dragged out of its place, and made to appear more as a clown or "fool" than the declarations of true wisdom.

All farmers would find great benefit in a thorough practical knowledge of chemistry; but all farmers never will be chemists any more than they will be physicians or lawyers. It requires as long study and as thorough practice to be a truly skillful and *practical chemist*, as it does to be a good physician or a good lawyer. We may talk about this in our public addresses, and write about it in our journals, but no Methusaleh will ever live long enough to see such a diffusion of knowledge actually accomplished.

Our lands are just about as much diseased as our bodies are. As stated elsewhere in this number, there are scores that have some physical ailment, generally or frequently fastened upon them in the primary school, while others are inherited from their parents, where there is one strong, vigorous, well-developed system, without any weak spot in it. No one expects that all will become skilled in prescribing for all the ills that "flesh is heir to," and why should they dream of any such reform in respect to the "theory and practice" of agriculture? We hope to cure these bodily ills, but only by improving our school benches, and our habits in childhood and youth, and by having wise teachers and wise committees and trustees, while it will be the part of the children to obey. The process must be analogous to this, in reclaiming our waste lands.

Animals fed on food which is destitute of certain elements, will exhibit corresponding diseases in their own bodies. The same phenomenon is universally witnessed in plants which grow sickly and feeble for want of one or more of these elements. The land is barren, the crop fails, and the season is lost, perhaps, for the want of a few pounds of phosphorus per acre, or a very small supply of nitrogen.

Thus we lay down such general statements as we have given at starting, and prescribe, in general terms, that for close, compact lands, the plough, the cultivator, and the harrow must be vigorously applied; that in heavy, moist soils some compost of an opposite character must be thoroughly mingled; and when we have formed a list of such rules of moderate length, we have gone to our utmost limit. No millenium of our anticipation will ever produce learned men without persevering laborious study, nor allow one to be dili-

gent for a whole day in out-door labor, and then do a day's work in the library at its close. It is only the few wonderfully apt minds of those who are not eminent for the amount of work accomplished in their own calling, that *seem* to furnish exceptions.

We therefore must content ourself and our readers by an endeavor to give general principles, with a few appropriate directions, when the conditions of the case are obvious, and leave the rest to the agricultural chemist, who, if properly trained, may give specific directions in each case, presented to him, precisely after the manner of a family physician.

Certain facts are well established. If by tight shoes we produce corns on the foot, one essential part of any remedy must consist in removing this pressure. So if our farmers have exhausted their soils by repeated crops, while the harvests removed have not been supplied in some other form, the land must deteriorate. And one essential point must not be overlooked; to wit, this process *must be stopped*. No plan can be successful in endeavors to do this, which does not carefully regard this fact.

The farmer must know what he has removed, and what he has returned. Probably few have manured their lands to an amount equal to what has been removed in the *accidentals* of the crop, so to speak—such as the straw of various grains, the stalks of corn, the tops of potatoes, etc. Now a good crop of grain cannot be grown without a healthy, vigorous straw; unless this growth is liberally provided, the crop must be a comparative failure. Barn-yard manures, next to the straw itself, are the best application for such a purpose. If deficient in anything, it must be in the silex, and this is abundant on almost all soils, though it may be in a condition to render it useless to the plant. Hence, silex in soluble form, or an application that shall render it soluble in water, in such cases will not be out of place.

Rest, however, is generally sufficient for this purpose. Natural agents act of themselves if let alone, and a year or two of rest will prove of great value to all soils exhausted by frequent crops.

A change in the nature of the successive crops, that is, judicious rotation, is another efficient mode of restoring the fertility of such soils.

In liquid manures, as urine, etc., these elements are already in solution, and hence act more rapidly when applied than solid manures. But for the same reason they are less efficient in renewing worn out soils, their efficacy being chiefly exhausted during the growth of the first crop.

The value of all manures is in proportion to the amount of useful elements which they contain, in soluble form. The following arrangement shows the elements which are most likely to be deficient, and which must therefore be provided by the successful farmer.

1. Nitrogen.—This is as important for plants as for animals, and whether it is obtained from the soil or the atmosphere, it is perfectly clear that this and all other matters which go to make up a "fertile soil," as generally understood, must be placed within the reach of the plant. This supply of nitrogen *may be* always appropriated from the ammonia which is in the air or in the soil, as chemists claim, but this does not enable the plant to dispense with the element in the soil. It must be furnished in some form.

2. Phosphorus.—This is another essential element, which ought never to be omitted. It exists in barn-yard manures, and all animal excrements. Still, an additional supply from guano, bones, etc., in many cases will prove highly useful. Especially is this the case where the cereals have been grown, for those crops consume the phosphorus much more rapidly than many other crops.

3. Sulphur is another element which is often used up by successive crops. This is furnished in gypsum, which is a compound of sulphuric acid and lime, and is therefore the sulphate of lime. Look over the various tables of analysis, note what crops contain this element in the greatest proportion, and if such crops have been or are to be grown on a given soil, it is at least safe to use this fertilizer freely.

4. The several alkalis may come next in order. An examination of different analyses will show which of these is most abundant in a given growth, and your knowledge of the crops raised will enable you to judge whether either of these is likely to be deficient. Three per cent. of lime should exist on all soils. It is always safe to apply them all, as an excess of alkali is not one of the evils ordinarily requiring caution in the preparation of soils. The alkalis may be supplied from bones, ashes, lime, gypsum, etc.

5. Carbon is present in all crops, and is always useful in every kind of soil, and though it is supposed to be appropriated by the plant from the atmosphere, it must form a part of every good soil, and though injurious when supplied so freely as to render the atmosphere of the plant essentially impure to the exclusion of Oxygen, etc., there is little actual danger of such excess. Charcoal dust, powdered peat, etc., contain this element in a very convenient form.

6. Iron may exist in excess in soils, but this occurs only in limited territories.

The mode in which these manures should be applied depends on their nature and the specific object in view. When lands are to be improved, all manures should be composted, or at least ploughed in and thoroughly mixed and incorporated with the soil. If the increase of a growing crop is the aim of the farmer, he may sprinkle them on the surface, and mix in with the harrow, etc., if the nature of the crop permits such operations, or he may use liquid manures as irrigants. Small portions used in the hill at the time of planting, act on the next crop chiefly, and if used freely will, in some limited degree, improve the general character of the soil. Where stocks are small, and the supply of barn-yard manure limited, various composts, as found on many pages of our journal should be mainly relied upon.

HORTICULTURAL.

Antwerp Raspberries.—The Poughkeepsie (N. Y.) *Eagle* gives a very good account of the details and extent of one branch of "Fruit Culture" thus:

But few persons are aware of the extent and importance of this comparatively new branch of Agricultural, or rather Horticultural business.

The most extensive operations in this part of the country, are carried on at Milton, Ulster county, although the fruit is largely cultivated in this country.

There are now about 100 acres of Raspberries in bearing, in the immediate vicinity of Milton, and immense quantities of plants are being set out every year.

A few days ago we visited the Raspberry plantation of Nathaniel Hallock, at Milton, in order to learn the *modus operandi* of the culture. Mr. Hallock's being one of the principal plantations.

The pickers were in the fields with their baskets between 8 and 9 o'clock in the morning, as soon as the dew was off the plants, as the berries do not keep so well when picked wet.

In a short time the pickers began to bring in the baskets of berries. These baskets hold about a pint, and are very neat looking, being made of willow, and much superior to the baskets in which strawberries are sold, in fact the berries would hardly sell if sent to New-York in strawberry baskets.

There were about fifty pickers at work—men, women and children—the women being the most expert pickers, of course.

One person was employed constantly, and a part of the time several persons, packing the baskets. The baskets, as soon as picked and examined, are packed into boxes of different sizes, according to the crop of that day. The object of putting them into boxes is to insure their safe transit to the market, and in order to do this the packer has to work carefully to fit the baskets in so that each one braces the other; when the boxes are filled to the top, the lid is closed and locked, and the boxes are ready for shipment.

The season lasts about six weeks, and this period is one continual round of business; the berries being sent off to New-York every night except Saturday, (there being no sale for them on Sunday.)

The berries were all picked about six o'clock, and after supper they were conveyed to the landing, the baskets making two very heavy two horse loads, and as we could calculate the steamboat took off about 60,000 baskets that night, making about 20 tons of berries, exclusive of the weight of boxes and baskets.

The baskets are imported from France by hundreds of thousands every year, and although such quantities are manufactured every year, the supply is inadequate to the demand, the latter exceeding the former by about one-half.

The culture of the plants requires the services of a large number of people.

The pickers constitute a small army, there being from five to ten, and often more required for each acre, according to the time in the season, which was at its height this year about the second week in July.

The manufacture of the boxes in which the baskets of berries are packed is no small item, and the steamboats that carry this extra freight are obliged to employ extra men to handle it.

This business, though at first view it seems small, gives employment to, and distributes its gains among thousands of persons.

From the Milton landing, the average daily export is 10,000 baskets, and the retail price in New-York, averages about ten cents per basket, thus the product of 100 acres, amount to $1,000 per day, or $42,000 per season. We can call to mind no other crop which produces as much per acre, or which gives employment to so many.

Catawissa Raspberry.—The Catawissa raspberry originated in the graveyard of a little Quaker meeting-house in the village of Catawissa, Columbia county, Pa. The fruit is of medium size, inferior to many of the new popular varieties, but is sufficiently large for all economical purposes. Its color is dark red purple when ripe, and is of a very high flavor. It bears most

abundantly after the young wood, on which it produces its best fruit, attains a height of four or five feet; usually begins to ripen early in August, and even sooner. The fruit is produced on branches continually pushing out from all parts, successively appearing in various stages of growth, from the blossom to perfect maturity; and often there may be counted more than fifty berries on a branch. As the fruit of each branch successively ripens, the later ones gradually diminish in size; but there is no suspension of blooming or fruiting, before the plant is checked by frost. If protected in doors, it undoubtedly would produce during the winter months. One great advantage of this over other varieties of the raspberry is, that if the stocks should be accidentally broken off, or should be killed by winter frost, it is all the better for the crop. Another advantage is, that from the small space of a few yards well cultivated, a daily dessert for a small family would always be at hand for from three to four months of the year.

LONICERA FRAGRATISSIMA.

This is a sub-evergreen hardy shrub. Flowers whitish, very sweet scented. Native of China. Belongs to Caprifoils. Introduced by the Horticultural Society.

This is one of the plants obtained from China by Mr. Fortune, while in the service of the Horticultural Society, but has not flowered in the Chiswick Garden, where it has been merely known as a perfectly hardy "Caprifolium." In January, 1853, it blossomed in the garden of the Marquis of Salisbury, at Hatfield, whence Mr. William Ingram, the gardener there, sent us specimens, with the following note, on the 13th of April:

"The plant which affords me these flowers has been in bloom since January. It occupies an east wall, and has enjoyed no particular advantages of soil or treatment. The flowers appear with the earliest development of the leaves; and although not large or otherwise striking in appearance, compensate for any deficiency by their exceeding fragrance, combining the richness of the perfume of orange blossoms with the delicious sweetness of the honeysuckle."

Its evergreen foliage distinguishes it from all the previously-known species of the Chamæcerasus division of the genus.—*Paxton's Flower Garden.*

THE NEW-ROCHELLE BLACKBERRY.

We have just received a specimen of the fruit of the New-Rochelle blackberry, for which we are indebted to the politeness of Messrs. George Seymour & Co., of South Norwalk, Ct. The berries were slightly bruised in transportation, some forty miles on the railroad; but we assure our readers, nevertheless, that they afforded us a very fine treat. Mr. Woodworth, our neighbor of Woodworth's *Youth's Cabinet*, who has just paid a visit to the nursery of Messrs. Seymour & Co., assures us that this blackberry is all that has been claimed for it. He counted upwards of 800 berries onone stalk, many of them of gigantic size, and all much larger than the common variety. Messrs. Seymour & Co. have several acres devoted to the cultivation of the plants, though they have no hope of being able to supply the demand for the next season. We are well assured that there is no humbug in this blackberry.

Currants.—A writer in the *Horticulturist* speaks of the fine currants of the market gardens near London, which are grown in the following manner: They are planted in rows twenty or thirty feet apart, and three or four feet apart in the rows; the ground which is naturally good is highly manured, and cropped between with vegetables. When the plants commence bearing, they are pruned very hard; the greater part of the young wood is thinned out, and what is allowed to remain is shortened back to three or four inches. By this means the trees are always kept short, never attaining a greater height than two or three feet. These strong manured and well pruned trees produce magnificent fruit, and in great abundance, well remunerating the market gardener for his trouble.

Wine Making is getting to be a profitable business in Lower California, where the vineyards are extensive. One proprietor last year had twenty five thousand bottles of wine from his vineyard, and this year he expects a greater yield.

SOUTHERN FRUIT.

THE ORANGE, LIME, LEMON, AND FIG OF FLORIDA.

The Orange.—This tree, at one time furnished the leading export of Florida. Previous to the great frost in 1835, it is said that there were over two millions shipped annually from St. Augustine alone. The orange of Florida is very large and fine flavored, and commands the highest price of any in the market, having been sold in the grove as high as $10 per thousand. It has been remarked that the fruits of the tropic, generally, grow to the greatest perfection near its verge. This is certainly true in regard to the orange and banana, which, in the northermost Bahama islands, are much superior to those of Cuba, St. Domingo, and localities still nearer to the equator. From the shores of the Atlantic to the Mississippi, the great frost of 1835 completely ruined the orange groves. The effect was probably nowhere so severely felt as in Florida, where they furnished the staple crop of the country. The effect upon the city of St. Augustine, which was one vast orange bower, is thus described by Williams:

"All kinds of fruit trees were killed to the ground, and many of these never again started from the roots. The wild groves suffered equally with cultivated ones. The orange had become the staple of our commerce, several millions being annually exported. Numerous groves had just been planted, and extensive nurseries could scarcely supply the demand for young trees.

"Some of the groves the previous autumn had brought their owners one, two, and three thousand dollars; and the increasing demand for the fruit opened prospects of mines of wealth to the inhabitants;

'Then came a frost, a chilling frost;'

some of the orange groves estimated to be worth $10,000, were at once rendered worthless. A portion of the population of St. Augustine, who had been accustomed to look to their orange groves for the purchase of luxuries and of necessities, were left suddenly without resource. The town of St. Augustine, that heretofore appeared like a rustic village, its white houses peeping from the clustering boughs, and golden fruit of its favorite tree, beneath whose shade the foreign invalid cooled his fevered limbs, and imbibed health from the forest tree, how is she fallen! Dry, unsightly poles, with rugged bark, stick up around her dwellings, and where the mocking bird delighted to build her nest and tune her lovely songs, owls now hoot at night, and sterile winds whistle through the leafless branches. Never was a place more desolate."

Years passed on. A new growth had, in a measure, redeemed this desolation, when a new calamity was experienced, not as sudden, but eventually as destructive as the frost. This was the visitation of the "insect," against whose ravages nothing was found to avail. Grove after grove became blighted, yet, as some localities were spared for several years, it was hoped the destruction would not be universal. The insect first made its appearance at Mandarine, a flourishing village on the banks of the St. John's. It was thought by some to have been imported on a couple of trees brought from China and planted here. Like the weevil in the northern and southern wheat fields, nothing can stay its progress until it has run its appointed cycle, and

will probably disappear as mysteriously as it came. Twice, during the last hundred years, has the orange in the Mediterranean and South Europe been similiarly attacked. And the hope that here, as in Europe, the insect will pass away, still continues to cheer the Florida orange grower, and he awaits the happy moment to renew his operations with renewed vigor.

An orange grove of common sized trees will produce from 500 to 2500 oranges per tree, worth $5 and $25 per tree. One hundred trees or more can be planted upon an acre. Very little labor is required to keep a grove in condition. The sour orange, which grows spontaneously all over the peninsula, may be budded with the sweet orange, and will bear in three years. In many places the banks of lakes and streams are lined with wild groves of orange, some of them great in extent. These do not seem to regard the insect to any great extent, and continue to hang their golden clusters amid the green. On the upper waters of the St. John's, and also on the Atlantic coast near New-Smyrna, fine oranges are now produced; those from the groves of Mr. Shelden and Mr. Speer being of peculiarly large size and delicious flavor.

Lemons and limes grow very thickly in Florida, and are abundant in a wild state. The Sicily lemon, transplanted in Florida, is much improved from the original; the writer of this has seen a specimen which measured eleven inches in circumference.

The fig attains perfection in Florida. There are several varieties of this fruit; those of a dark purple color and about the size of a hen's egg, being preferred for the dessert. A branch cut from a bearing tree, and merely stuck in the ground, will produce fruit in two years. No attempt has been made to preserve dried figs in Florida, but it is evident that some method to do this could be devised, in which case New-Smyrna might rival the Asiatic Smyrna in her export of the delicious fruit.

The hawey is a miniature fig, growing upon a large beautiful tree in southern Florida. The fruit is above the size of a hazel nut, and grows from the limb of a tree without any apparent blossom. It is of a dark brown color, and resembling the fig in taste.

The persimmon is a delicious fruit, when fully ripe. In fact, when it is in perfection, there are few tropical fruits that can rival it in richness; when green it has a fragrant astringency, only equalled by the prickly-ash or the wild turnip. The natives of Florida used the dried persimmon extensively as an article of food, and we read in the lists of stores and provisions furnished by them to the old Spanish expeditions of cakes of dried persimmon. —*Abstract from Soil of the South.*

HUMAN PHYSIOLOGY.

[We have long thought it would be useful and desirable to present correct views, at length, on this most important subject. We have just received the following excellent essay on one branch of the subject, which we give below as an introduction, inviting our valued correspondent, from whom we shall always be happy to hear, and others who take an interest on this subject, to give their views in careful detail on any of its numerous departments. All are profitable, and appropriate discussion is never without a good result.—Ed.]

THE TREATMENT OF CHILDREN.

Poor children! My heart aches when I look at the little things! If you would know why, just take your stand where you can have a fair view as they come streaming out from the various departments of the public schools. How many do you see that are fat, rosy, and substantial-looking? How many can you select that have neither sunken, sickly-looking eyes, deformed bones, or the sallow complexion unnatural to childhood?

Were I to offer to adopt all the sound and natural children you could select from that mass of three or four hundred, I should not apprehend any risk of imposing a great burden upon myself.

Poor children! I wish I could read their mothers a lecture, which would ring in their ears until there was a complete reform in babydom. A mother's pride in her children is proverbial. Is it not strange, then, that she does not make childhood her first and most earnest study? Is it not passing strange that she should rear children without continuous and earnest thought and research upon the proper means for securing the highest degree of health and beauty?

In this matter, as in many others, that is an inexcusable weakness which leads us to walk in the old paths, for no better reason than because they are the same which our fathers and mothers trod. Remonstrances with a mother upon the treatment of her child are often answered with the very foolish reason, that her mother pursued the same course in raising a family.

Poor children? My heart aches for them, that they have not mothers who will think for themselves. Through ignorant kindness or culpable thoughtlessness, many feed their children, from the age of three or four months, on meats, pastry, or whatever they themselves eat, washed down by tea and coffee. The children may thrive for a time, and be pointed out by the mistaken mothers to those who advocate "milk for babes."

Such, probably, was the babyhood of ninety-nine hundredths of those unfortunate children that were just seen issuing from the public school. Without any regard to the indications of nature, the infant system was stimulated by those things that are with difficulty digested even by the adult stomach.

Poor children! Not only were they overfed, but from the time they were first put into the hands of the nurse, they have been tortured by their dress, as though they must thus do penance for mother Eve's transgression. Who can sit, a calm looker-on at a baby's toilette-making—the lifting up and laying down—the turning over and twisting around—the girthing and bandaging—the pinning and pulling—the powdering and dosing—the laying on of garment over garment with rule, but without reason?

So true it is that "the child is father of the man," I fear for future generations, unless there be a reform in *babydom*. The treatment followed in a majority of cases vitiates the system at an early age, inducing scrofulous diseases, premature developments, and tendency to insanity. The whole system is an unnatural and diseased condition. Years *may* pass, and the child may even grow to maturity without suffering from severe sickness. But when it comes to assume the responsibility of rearing offspring—what a progeny—dwarfed, mentally and physically—an embodiment of disease, born to endure life, not to enjoy it.

Better would it be for our race were a Spartan severity enforced, than thus to people the earth.

So long as parents exercise authority over their children in other matters,

they ought to do so intelligently in the important items of food and clothing. To the age of ten years, the child's food may be of the simplest character, yet nutritious enough to supply all the wants of the body. Milk, bread, ripe fruits, and vegetables certainly offer sufficient variety, and promote a healthy appetite without resorting to meats, tea, coffee, etc. At whatever age stronger food is allowed, it should be taken in moderate quantities at the noon meal.

The number who are induced to mark out a path and follow it is small, because the majority are willing to blindly do as their predecessors did. But perhaps there is no subject of more universal importance to the race than the proper treatment of children—no subject which should be more constantly brought before the minds of the people—none more worthy for employing the eloquence of philanthrophic physiologists. JUNE ISLE.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

MEMOIR ON THE PRODUCTION OF BUCKWHEAT.

[CONCLUDED.]

IT now remains to indicate sundry preparations of Buckwheat, which we extract from the 71st page of my Memoir before referred to.

"SEMOULE. 1st. Prepared with milk, with water, and with broth.

"The Semoule is put into the boiling liquid, in due proportion, and then is frequently stirred with a spoon, while it is boiled over a moderate fire for half an hour. Two ounces will suffice for a litre. The water should be salted to one's taste. In eating this, add a little fresh butter. 2d. If you mix four ounces of Semoule in a litre of water, you will obtain a thickened mass, which being placed gently on a plate, and allowed to cool, will become firm. It may be cut with a knife, and being served in a soup-plate with the addition of a little broth, answers as a substitute for bread. 3d. This thickened semoule, fried in a frying-pan with butter, is an agreeable dessert. 4th. Four ounces of semoule, corked with milk and cooled, the yolks of a few eggs and little sugar and raisins, make an excellent cake. (It much resembles cake prepared with rice. It should be cooked in a copper pan, with a liberal proportion of butter, covered, and to make a crust, a little fire may be placed on the cover.) Each one may mingle with this as he pleases, dried prunes, orange peel, raisins, cinnamon, or the water of orange flowers. 5th. "The same semoule, with a little butter added to the water, and with salt and minced parseley, makes a good dessert." Instead of the parseley, sugar, cinnamon, or the water of orange flowers may be substituted. 6th. Semoule thickened with hot water, with the addition of fresh butter, makes a dish which, eaten with the sauce of ragout, may be a substitute for bread."

GRUAU.—[From page 73 of the same Memoir.]

7th. The course meal, gruau, is prepared in the same manner which we have indicated in the 1st, 2d, 3d, and 6th of the above paragraphs, in treating of Semoule, with this difference, that twice the quantity of gruau should be used as is prescribed of the semoule; that is, four ounces for two, etc. 8th. A ragout of mutton being cooked in a sauce, well clarified, and well

seasoned, gruau being then added in due proportion; the mass stirred briskly and often, over a moderate fire, the result is an excellent ragout, *a la Caliph of Bagdad.* 9th. To make cake, the gruau, cooked in water with salt and butter, is placed in a copper pan or in a baker's oven. 10th. Mix half a pound of gruau with a litre of water, salt it, let it stand in a cold place, cover it, and send it to the baker. When cooked, cover it freely with butter, and you obtain a dessert *a le the Emperor of Russia.* It is improved by the addition of butter in the pot before it is cooked.

The gruau of Buckwheat serves also for the confection of excellent puddings. They may be prepared as follows:—Upon a half pound of gruau, pour a little boiling water, mixed with a pound of the liver of veal, of mutton, or of pork, and mix it with the meal. Pour over this a pound of melted fat, season with salt, pepper, pimento, etc., to taste, when this mixture is brought to a proper consistence, neither too thin nor too thick, and when cooked for half an hour in boiling water, it forms an excellent pudding.

A very delicate pudding is made with the semoule of Buckwheat as follows:—Take one pound of scalded semoule, two pounds of liver, one pound of fat, four ounces of raisins, two ounces of pounded sugar, season with salt, pepper, etc., in proper quantities, mix, etc., and you have a confection highly prized in Poland and Germany.

I now proceed to point out certain uses for the farina of this plant. It may be supposed that it is impossible to make good bread of this farina, but this is an error, though it cannot be thus used unmixed. It would be heavy, and soon become dry. But it should be mixed with that of wheat or of rye. We have made experiments in this in presence of the agricultural commissioners of Remorantin, that is, the department of Loire and Cher, in France, and the result was as follows:

Extract from the Report of the Agricultural Commission of Remorantin, Session 20th January, 1838.

"The commission was conveyed to the manufactory of Mr. Saniewski. He had there provided for the fabrication in our presence, of thirty pounds of the farina of buckwheat, which was delivered to M. Lacroix, a baker of reputation, at Remorantin, for the purpose of being manufactured into bread for experiment.

"*Session of 22d January,* 1838.—The progress of manufacturer of the trial bread was gone through with in the presence of the commissioner, in the bakery of Mr. Lacroix, in the proportions indicated in the table following:

No. of composition.	Pounds of Farina of Buckwheat.	Wheat.	Rye.	Total of composition.
1st	3	3	0	6
2d	4	2	0	6
3d	2	0	2	4
4th	4	0	2	6
	13	5	4	22

RESULTS OBTAINED IN BREAD.

Qualities.	Pounds weight after baking.	Weight 24 hours after.
1st,	6.12	6.1
2d,	7.2	6.2
3d,	6.10	4.9
4th,	7.14	7.

This operation leads us to the following observations:

The season was cold, and it was difficult to obtain a good fermentation. The bread termed No. 1 was delivered imperfect, and gave a product inferior in quality to that which it was hoped would be obtained from that mixture, and which had been presented us by M. Saniewski. (It should be observed that I had presented bread made at my house, for the use of my family, which was of excellent quality. We had used bread made from buckwheat mixed with wheat or rye, but my wife kneaded it in a warm apartment, and sheltered from the cold, which was excessive at the bakery. I add that it is necessary to make use of leaven for the proper fermentation of the farina of buckwheat.)

There is but one kind of black, compact bread, made by the people of France, from buckwheat, and still it is often very inferior, as the buckwheat is ground with the hull, and is not properly cleaned, but good farina of buckwheat can be employed in other forms besides that of the buckwheat cakes in general use in the United States, as follows :

1. *Small Cakes.*—Knead this farina with tepid water, with salt in due proportion. The mass must not be too thick, but be well wrought. Take small portions of this mass in a spoon and immerse it in boiling water, so as not to diminish its heat, and allow them to remain till they rise to the surface. Then take them from the water and place them upon a dish, and dip them into cold water, and eat them with fresh butter. Warmed and fried, they are an agreeable food, which may be a substitute for bread.

Remark.—I have learned that when fried in pork fat, with onions, they form an excellent dish.

14. When these small cakes have been taken from the boiling water and passed into the cold water, (see 13,) take some diluted broth and season it with butter or lard fried with onions, heat it and pour it upon the cakes, and you have a very nutritive dish, which is everywhere used by the people of the country. The soup is used as a substitute for bread.

Thus, too, this soup may be prepared with milk, immersing the cakes in boiling milk, and diluting it afterwards with water.

Again, when the water is boiling, without taking it from the fire, drop the farina into it, and leave the mass to boil from fifteen to twenty-five minutes. Pour off the superfluous water, and with a wooden spoon knead the paste which is formed, until the farina which is not cooked takes the form of paste. Then take it in a spoon dipped into butter or fat, dividing the paste into small pieces, fry them in pork fat, and you have an excellent dish, which in Poland is called Parka, or ——

This farina used with the farina of wheat in the proportion of three to five, serves for the making of spiced cakes, and gives an agreeable flavor.

The straw of buckwheat is good, mixed with the straw of oats, of barley, or of hay, as feed for cattle or for sheep in time of scarcity, but should be seasoned with salt, and should be fed to them after they have had a little salt water.

Buckwheat is also good for bees, and forms honey of the best quality. The wax made from it is hard and white.

SANIEWSKI FELIX,
Polish Refugee.

KISLICHY.

We gave a recipe for making this European (German) drink, in a recent number, from M. Saniewski, remarking that we thought the quantity of water much too great. We have since discovered that a mistake was made by one

of us in transcribing the figures in the printed memoir, to which reference has been made above. It reads thus:

10 pounds of the farina of wheat,
3 " malt, made fine,
3 " of the farina of buckwheat,
50 quarts of boiling water.

Then add half a pound of brewer's yeast or 2 pounds of baker's yeast. The next day stir the whole mass, and add 50 quarts more of water when the fermentation is finished.

WOODLAND.

The decrease in the quantity of valuable timber in this country has been often alluded to in our journals, and much is done in the way of securing new growths. But much more ought to be done, and much that would pay handsomely for the cost.

We publish an extract from the Reports of the Massachusetts Agricultural Society of 1854, which is the result of extensive inquiry and careful observation. It is as follows:

"A class of lands has been already mentioned, with a query whether it would not be true economy to make woodland of them, subjecting others less exhausted to cultivation in their stead. Many thousand acres of poor and worn-out lands may be found in the eastern part of the State and elsewhere, which, for all practical purposes of cultivation, may be considered as worthless, the net profits from them not being worth estimating. Such lands as I have intimated, have already been planted with pitch-pine to a considerable extent; and as many acres have been visited for the purpose of examining the progress of the experiments, it is proper here to state the methods which have been pursued with success.

"The pitch-pine is adapted to a light sandy soil, or to one which has been exhausted by continued cropping. On such a soil it will do well, even in the early part of its growth, if no attention at all be paid to it; whereas, if it stands on rich land, with a deep mould and full of organic matter, the grasses and weeds too often check its early growth, if indeed they do not entirely destroy it.

"The seed of the pine may often be purchased at about one dollar a quart. It is usually gathered in October by taking the new cones from the trees, before they have been opened by the frost, so as to allow their seed to fall. These cones should be kept free from moisture, and dried in the sun, or by artificial heat. When dry, the seeds become loosened and drop from the cones, or they may be threshed out. They are cleaned by rubbing and winnowing. In Europe it is generally considered better to sow thickly in beds; when about three years old the trees are transplanted. This course is not generally pursued here on account of the labor of transplanting, though if the soil were worth any thing for pasturage during these two or three years, it would probably be advisable to adopt it. The seed may be sown either in autumn or in early spring. Many use the hoe for making the holes, and drop the seed by hand; others plough furrows six feet apart and drop the seeds in the bottom of the furrows from one to two feet apart.

This requires too much time and labor if the plantation is to be very large. A simple machine has been contrived for dropping the seed at the proper distance, by which a man with a horse may plant five or six acres in a day, which is quite as much as he could plough with furrows at the distance of six feet in the same length of time. This machine costs from three and a half to five dollars.

"About a quart of seed is generally allowed to four acres. If it be of good quality, this is commonly found to be a sufficient quantity. Probably, however, planting a little thicker would secure a more perfect exemption from any difficulty arising from accident or bad seed.

"The transplanting of young white pines may be effected with safety at almost any season of the year, provided, in taking them up, the bark of the roots is not strained and broken or loosened. The roots may be cut off with much greater safety than their bark can be broken. By careful attention to this precaution more than a thousand young white pines were transplanted by a farmer in Bristol county with the loss of only one or two.

"Among other very valuable trees may be mentioned the yellow locust, on sandy land, both on account of its intrinsic value as wood, and the benefit to dry pasture lands. The Scotch larch has also been planted to considerable extent, and for rapidity of growth, value for timber and beauty, is one of the most desirable additions to the farm. The silver polar on light soils and exposed situations, is also of great value, as are also the white birch, the chestnut, and, as an ornament unsurpassed, the graceful elm."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

PROPAGATING FROM SUCKERS.

It is hardly supposable that nurserymen would palm off upon their customers suckers for healthy trees. But notwithstanding all that has been written upon the subject, the budding or grafting and transplanting of suckers is a common practice. It seems to me proper, therefore, that line upon line and precept should be given touching this matter. No fact is better established than that a healthy, long-lived tree cannot be produced from a shoot or sucker. The cherry, plum, apple and pear tree will often send up from their roots thrifty and healthy-looking sprouts. These are seized by the unexperienced cultivator as a cheap and expeditious mode of multiylying his stock of trees. He will learn when too late that the sucker is the offspring of disease. No healthy tree produces them. They may grow vigorously for a while, and yield some fruit. But their career will be short, and their greatest yield will be of disappointment. Trees raised from suckers may be known by the profusion of sprouts which they generally send up. They are also dwarfish in appearance; and put forth an excessive number of fruit buds every spring. Very little of the fruit, however, will ripen. It will wither and decay upon the trees in all stages, from the blossom to maturity. Finally, such trees will die suddenly without any apparent cause; leaving to the proprietor no other reason for regret than that their demise had not occurred at an earlier date. I give the results of my own experience on this subject, corroborated by ob-

servation and the testimony of others; and I would say to all arborists that the experiment of raising fruit from suckers is no less futile than that of raising poultry from chalk eggs. R. R. H.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

THINGS TO BE DONE.

Apples which fall prematurely should be promptly gathered and removed. The pigs will be glad of them, and they will do them no harm. These windfalls are filled with insects which have already done mischief enough. If unmolested they will burrow in the soil and prepare for the depredations of the ensuing season.

The enemies of cultivated fruit are already legion; and it would seem as though they keep pace with the improvements in culture and the multiplication of varieties. If we would have good fruit we must not relax our efforts, but persevere, and prosecute the *varments* even unto death.

To this end it becomes us to secure what assistance we can command. The most efficient aids are the birds. Were there enough of them I doubt not they would do the whole work. Let them be protected and encouraged. The Legislature of Massachusetts did wisely at its last session in making it a penal offense to kill robins and some other birds. What better than barbarism is it to break up the nests of such birds, and even shoot them in wanton sport. And how superlatively nigardly to refuse them a few currants or cherries. It is but few they want after having labored faithfully all the season to protect the garden, and make home pleasant with their cheerful music. I, too, would treat *toads* kindly. Why not? They are great workers, devour multitudes of insects, are quiet and unobtrusive in their manners, and do no harm.

True, Milton says, Satan approached the ear of Eve, in position "squat like a toad." But that was no fault of the toad. True merit is always humble. Empty heads are always erect, while those filled with grain are bowed down. Sycophantic fools, who would sell what of soul they have, and allow themselves to be trodden upon if done by the heel of official greatness, are called "Toadies." But this is slander. The toad is a gentleman compared with such. He catches his own flies. He neither fawns nor will be fawned upon; and further, he is said to have something valuable in his head.

Weeds should not be permitted to go to seed in or about the garden or cultivated fields. Noxious weeds, like sins, are wonderfully prolific. There needs but few stocks to seed a large field. To spend the whole summer in labor to subdue the weeds, and then allow enough to mature on the borders to stock the grounds for the coming season, when a few minutes' work, or hours at most, would remove them all, seems very much like litching mint and annis, and omitting weightier matters.

I no more believe that weeds can be killed out, and cultivation become *clean*, than I believe that absolute perfection is attainable in this life. Yet, as in the latter, it is our duty to labor *at* the attainment of so desirable an object. So, in the former, we should aim at extermination, and accomplish all we can.

Scions which were set in the spring should now be looked after. A vigorous growth of suckers will be found to have shot out. These should all be removed, except where the scions have failed. In such cases they should be spared to keep the limb in a healthy condition for subsequent grafting.

The wax should be examined, and if necessary more should be applied, and all the cracks and crevices should be stopped. Whatever is worth doing at all is worth doing well. If worth one's while to graft a tree, it will pay to care for it when grafted.

The secret of failure in fruit growing, in most cases, is want of *continued* care, and the tree may have been judiciously selected and properly planted, but then it is neglected. The budding and grafting may have been well performed and then no more care bestowed. What wonder that no fruit is obtained, that fruit-growing is regarded as a thriftless business? Let the corn plant receive no better attention, and what would be the result? Would not the planter conclude that corn growing don't pay? R. R. H.

OBSERVATIONS ON IN-AND-IN BREEDING.

Not having the honor to belong to the veterinary profession, I do not regularly read your very able periodical, though my attention has lately been called by a friend to an article in the number for May last, on the subject of "Animal Physiology, and Breeding Farm Stock," in which the writer most strongly reprobates the practice of in-and-in breeding. It so happens that I am well acquainted with Mr. Barford, of Northamptionshire, who is mentioned by name therein; and having some opportunities of seeing his management of his sheep, and his practice with regard to in-and-in breeding, I take the liberty of troubling you with a few lines in reply to Mr. Lance's paper.

That gentleman has adduced several instances, or rather related several anecdotes, "as the data on which he founds the argument, that consanguinity in blood among parents leads to degeneracy in the offspring." But, to me, they by no means satisfactorily prove his position. His long quotation from Mr. Lawrence's lectures about the Angola sheep makes rather for than against the practice of in-and-in breeding, as it clearly recognizes the possibility of retaining varieties of animals by "*preserving the race pure*," by selecting for propagation the animals most conspicuous for size, or any other property we may fix on. In this way we may gain sheep valuable for the fleece, or the carcass, large or small, with thick or thin legs; just such, in short, as we choose. The other instances he mentions, as of Hallers, "two noble females," of Mr. Marsh, of Ryton, having produced an "appalling malformation" in the produce of a son with his mother, and others, only prove, what I presume Mr. Lance will at once admit, viz., the truth of the old adage that "like begets like," and that where any imperfections, moral or physical, exist in the parent, they will most likely reäppear in the offspring, whether bred in-and-in or not.

As a set-off to one of Mr. Lance's instances, I may mention that Bakewell found that good qualities were also transmissible, and in as great a degree as evil ones. And it is rather singular that he founded the observation in

the results of an experiment (among others) exactly similar to that of Mr. Marsh, having found that a sow of his never bred so good pigs as when put to her own son. And allow me to ask Mr. Lance whether "the deformities of mind and body," which, according to Mr. Lawrence, spring up so plentifully in our large cities, cannot be amply accounted for by the intemperate habits, the vicious indulgences, the vitiated atmosphere, the unhealthy occupations, the undrained and unventilated habitations in which so many of our urban population live and have their being, without having recourse to "the want of selections and exclusions" to which he has alluded? For it must be borne in mind that, in agricultural districts, the same "want of selections and exclusions" exists as in the cities, without, as Mr. Lance must admit, anything like the amount of mental and bodily deformity which "degrades the race" in the towns. And supposing, for the sake of argument, that the state of many of the royal houses in Europe be such as Mr. Lawrence implies, may it not be possible that many generations of luxurious indulgence and unrestrained passions, which, perhaps, are inseparable from their exalted position, may not, by their continued though gradual effect on the constitution, sufficiently account for it, without attributing it wholly to the fact of their being restricted to some ten or twenty families in the choice of husbands and wives? But to return to sheep-breeding.

I gather, from what Mr. Lance implies rather than from what he says, that he imagines Mr. Barford allows the most promiscuous and indiscriminate intercourse among his flock. There cannot be a greater mistake. The most continued vigilance is exercised to prevent the propagation of any defect, should they appear, and, to use Mr. Lance's own words, "it is only the best that are allowed to continue the race." In this I presume Mr. Barford only follows the example of every other breeder; and not to do so, would at once stamp a man with the most ridiculous imbecility.

If the cousins, of whom Mr. Lance has spoken, if the white breed of fowls in Hampshire, if Mr. Marsh's hogs, if the "silly" sheep in Wiltshire, in fact, if the subjects of any of the in-breeding experiments he mentions, had any "deficieney of nervous energy," and "weakness of malformation," in short, any defect whatever, it is evident to the narrowest mind that the nearer the affinities, and the longer they are bred so, the more decided these defects become. But it must be absurd to attribute them to the bare fact of in-and-in breeding. Mr. Lance must prove that all cross-bred animals are free from all defects, before he can say that. In fact, I should regard failure in in-and-in breeding experiments as the most irrefragable evidence of defect in the parent or parents, and nothing more. I often think that it must be to misapprehension on this point that much of the unmitigated hostility to in-and-in breeding is to be attributed. People, by some means or other, get hold of the idea that the advocates of the system mean universal and indiscriminate in and-in breeding, than which nothing can be more absurd.

But let us see where Mr. Lance's favorite system will lead him when carried into practice. As the end and aim of all crossing is of course improvement, all breeders may hope to (nay, if the theory be correct, they *must*, at some period or other,) reach a point beyond which there is no improvement to be made by crossing; that is, they will produce a perfect animal, or, at least, one more perfect than anybody's else. Now, sir, allow me to propound this question to Mr. Lance: When a man has arrived at this point—when he has exhausted every source of improvement which the kingdom, nay, which the world affords,—what is he to do? It is evident he must adopt one or the other of the following courses: Either he must feed off and

consign to the butcher both his males and females, without any more ado; or he may allow them to live to an unprofitable maturity, and a useless old age, and die at last a natural death; or he may call in Mr. Stafford, and disperse to the four quarters of the globe the fruits of perhaps a life-time of care, trouble and anxiety, besides enormous expense, and begin again *de novo;* or he may knowingly and with his eyes open, by crossing them with animals inferior to themselves, retrograde, step by step, to the mediocrity and inferiority with which he set out in the first instance; or, his last resource, he may by in-and-in breeding, attempt to propagate them perfected as they are, and thus retain for his country and himself the benefits which such a race of animals must necessarily confer. But such is the amount of obstinate prejudice now entertained against this system that we might expect to see many gentlemen, perhaps Mr. Lance himself, adopt any of the above sources rather than the last. This is a suppositious case, but substantially it may be said to have occurred in the instance of Mr. Barford's flock, as the following rough sketch of its history will show.

About the year 1786, the late Mr. V. Barford commenced sheep-breeding. He hired rams of Mr. Robinson, of Wellingborough, who was a disciple of Bakewell, of Dishley, and bred from his stock. Mr. Barford continued to do so until about the year 1810, when the present Mr. Barford, considering his own sheep as good as Mr. Robinson's, and not being able to find any that he thought calculated to improve them, was really placed in something like the dilemma which I have above mentioned. However, in-and-in breeding had no imaginary terrors for him, and therefore he boldly adopted the last of the courses which I have enumerated; so that, by necessity, even if he had not from choice, he must have become an in-and-in breeder. I will not take upon myself to say that he has succeeded; but I do ask any gentleman who is skeptical of the possibility of the thing to visit him, and inspect a flock of which every individual sheep has a pedigree than can be traced back for upwards of forty years without a cross!

With such a fact as this before me, Mr. Editor, and with the still more significant one that the Jews have bred from the closest affinities from the very time of their father Abraham, without any deficiency of nervous energy, or any physical or moral degeneracy, I think I may be justified in declaring my firm opinion that the explanation of the numerous and palpable defects in man and animals, in modern times, must be sought in other reasons than the system of breeding Mr. Lance so strongly objects to.—Omega, *in The London Veterinarian.*

A GRAND NATIONAL EXHIBITION OF STOCK.

The United States Agricultural, Society under the Presidency of Marshall P. Wilder, does not not prove to be a mere opportunity for holding office, nor its official stations mere sinecures, as some predicted. Some of the largest and best exhibitions in the country have been under the auspices and through the agencies of this Society.

Another exhibition of stock is now contemplated at Boston during the next month, as will be seen by the following official notice. We commend this to the attention of stock growers and amateurs, and all lovers of agricul-

tural progress throughout the country. Improvement in stock lies at the foundation of all improvements, bearing directly upon improved feed, more economy in the selection and proportion of the various crops of tillage, pasture, etc., and creating in fact a sort of more necessity for improvement in every department of agricultural management. We commend this exhibition to the public favor as promising to be one of the most interesting exhibitions ever held in New-England.

CIRCULAR.

A Grand National Exhibition of Stock.—Horses, Cattle, Sheep and Swine—open to competition to all the States of the Union, and to the British Provinces, will be held by the United States Agricultural Society, in the City of Boston, on Tuesday, Wednesday, Thursday and Friday, October 23d, 24th, 25th and 26th.

Twenty-Thousand Dollars have been guaranteed by patriotic gentlemen of Boston and its vicinity to defray the expenses; the City of Boston has generously granted to the Society for present use, a fine public square of fifty acres; and Ten Thousand Dollars will be offered in Preminms, in the various departments.

The previous Exhibitions of this Society—at Springfield, Mass., in 1853, and at Springfield, Ohio, in 1854,—were eminently successful, and no efforts will be spared to make the present Show, combining as it does, the Four Great Departments of Farming Stock, superior to its predecessors.

The Premium List, with the Rules of the Exhibition will be forwarded to all who will address the President, or Secretary, at Boston, to that effect.

It is earnestly hoped that all Breeders, and owners of Fine Stock will feel it to be a duty, as it certainly is for their interest, to contribute for the Show.

The List of Entries, Exhibitors, and Award of Premiums, and all the proceedings of the Exhibition, will be published in the Journal of the Society, for 1855. Annual Members of the Society, who desire to receive the Journal, should remember to renew their subscriptions.

MARSHALL P. WILDER, President.

WILLIAM S. KING, Secretary.

BOSTON, AUGUST, 1855.

☞Editors favoring the objects of the Society, will please give the above an early insertion, and notice.

AMERICAN INSTITUTE—ANNUAL FAIR.

THE Twenty-seventh Annual Fair of the American Institute will be held in the Crystal Palace in this city in October next, and we cut the following from the circular which has been issued:

"The Twenty-seventh Annual Fair of the American Institute will be opened in the City of New-York on the third day of October, 1855, and continue during the month.

"The Managers announce to the Manufacturers, Mechanics, Inventors, Artizans, Farmers, Gardeners, and all others interested, in the United States, that they have secured the Crystal Palace, erected in 1853 for the Exhibition of the Industry of all Nations, in which to hold the Twenty-seventh Annual Fair of the American Institute.

"This magnificent and spacious building will afford unusual facilities for the arrangement and display of the various specimens of *Art* and productions of *Nature*. Steam-power will be provided, to put in operation Machinery of every description, and the Managers pledge themselves to make every exertion in their power to effect such arrangements, for the accommodation of exhibitors, as will secure the great ends of the Exhibition.

"Premiums of Gold and Silver Medals, Cups, Books, and Diplomas, will be awarded to the Exhibitors of articles deemed worthy of such distinction, by competent Judges appointed for that purpose.

"Practical and disinterested persons, acquainted with the several branches in which they shall be appointed, will be selected for Judges, to whom all articles for competition will be referred, in order to secure the same satisfaction that has heretofore been given, in the bestowal of the awards of this Institute. To insure a perfect impartiality, the By-Laws of the Institute prohibit 'any premium being awarded by the Board of Managers to any Member of their Board, to any of the Trustees, or to any of the Standing Committees of the Institute, or anything in lieu thereof.'

"The awards will not be confined to specimens prepared expressly for exhibition; but when articles are entered as being of ordinary manufacture for general consumption, full weight will be given to that fact, as showing the actual state of the particular branch to which they belong.

"The Managers desire strongly to impress Exhibitors with the necessity of furnishing information, at an early day, of the description of articles they intend to exhibit, and the space required for their proper display."

The Managers are striving to make an exhibition that shall do honor to all concerned, and will furnish all the facilities in their power to satisfy both exhibitors and visitors. They offer peculiar inducements for the exhibition of steam-engines, and building materials, natural or artificial, and also for Designs, Sculptures, Paintings, etc. The products of agricultural and household industry, of course, are among the necessities of such an occasion. We hope the public will give their attention to this. Mr. John W. Chambers is the Secretary of the Board of Managers, and may be found at the rooms of the Institute, 353 Broadway.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

PROVIDENCE, Wednesday, Aug. 15.

THE American Association for the Advancement of Science commenced its Ninth Annual Meeting in the chapel of Manning Hall, Brown University, August 15th.

The officers of the Association are as follows:

President—Dr. JOHN TORREY of New-York.

Permanent Secretary—Prof. Joseph Lovering of Cambridge.

Treasurer—Dr. A. L. Elwyn of Philadelphia.

General Secretary—Dr. Wolcott Gibbs of New-York.

The meeting was called to order by the President, Dr. TORREY, who at once introduced to the Association the Rev. Dr. Wayland, President of Brown University.

He gave them a very handsome welcome. We make the following ab-

stract of the discussions of especial interest to the public from our city dailies.

Economy of Heat.—The first paper read was by Prof. Henry, on Combustion. He had based his experiments on a paper by Count Rumford, stating that when the sides and back of a grate were composed of fire-brick and heated red hot they radiated more heat than the fire itself. When a fire was made of coals and small pieces of fire-brick it gave out a much greater amount of heat and the cinders were entirely consumed. The same effect was produced by the mixture of fuel and clay. Count Rumford had given no account of the cause of that phenomenon. He had repeated the experiment and the result appeared to confirm the experiments of Count Rumford. He then varied them with flames of hydrogen and alcohol and different substances, carbonate of lime, glass, stone, coal, and clay. Carbonate of lime produced the greatest effect. It had long been known that a piece of platinum wire in a flame would increase the radiation of light, and these experiments proved that the radiation of heat was increased in like degree. We could not suppose that the absolute amount of heat was increased. The most probable conjecture he thought was, that the heat of combination was converted into radient heat. To test this he had placed a platinum wire in the apex of a flame and introduced a slip of mica, one-fifth of an inch in. breadth, vertically beneath it. The wire immediately diminished in intensity of light and of radiant heat, so that while the mica itself was radiant with light and heat it was evident that its introduction cooled the flame above it, verifying the idea that the intensity of radiation was produced at the expense of the heat of combination. So if fuel was to be employed in the evaporation of water by combustion under a kettle, its effect would be diminished by any substance intervening between the flame and the kettle, and the flame ought to be made to strike directly on the kettle with considerable force. But a very different fire was required to warm a room. In that case, radiating substances might be employed to advantage.

Temperature of the Planets.—In a discussion on this general subject Prof. Agassiz stated that at very remote times there was a similarity of animals in the polar and equatorial regions, indicating a temperature so nearly equal as not to be capable of explanation by any other hypothesis than that of interior heat. He did not think, however, that we should find it so gloomy on the surface of Mars as the gentleman had supposed; he thought we should see something more than red snow. In his wanderings on the Alps he had seen Cerastæ in full bloom at an elevation of 11,000 feet above the level of the sea. He had found several mosses also in the same situation.—A kind of Podura was frequently found in the fissures of the glaciers, and besides even the genus of the Cyclops and others which would make quite a Fauna and a little Flora were they examined and stated.

Prof. Loomis reäserted that the earth had not sensibly lost heat for 2,000 years.

Prof. Pierce stated that we never saw the body of Saturn, and it was always heated to a whiteness and we only saw the cloud above it.

Prof. Chase said that we knew that light was as necessary to vegetable life as heat was to animal life. He would inquire, then, where the light necessary to vegetable life on the more remote planets came from? How was it to be supplied? Did light radiate from the internal heated nucleus?

Prof. Henry said that this whole subject belonged not to the domain of actual science but of scientific speculation. It did not strike him that the same matter must be found in all the planets, even if we adopted the nebular theory of condensation. The condensation of different material would

take place at different epochs. He thought the proposition with regard to light was a very striking one. The dynamic power, which decomposed the carbonic acid necessary for organic forms, was found only in the chemical ray. The Sun was yet a great source of heat and life. Its strength however was wasting away.

> "The Sun himself shall fade, and ancient night
> Again involve a desolate abyss."

With regard to the changes in the Earth's temperature, the data were not very precise. There were conditions which militated against the results ascertained. He instanced the effect of the Moon in retarding the velocity of the Earth. The argument that the Earth had not perceptibly cooled within 2,000 years was based on the fact that the siderial day was now the same as then, and it would have shortened had the Earth shrunk by cooling. When certain substances became solid they became enlarged. His own view of the inhabitability of the planets was that the outer planets had passed that condition which was necessary to organized life, and the interior had not yet come to it. On the Earth organization had evidently commenced at the poles, and had gone out there while it was still luxuriant at the equator.—It was destined to go out there also.

Mr. Gould would ask the grounds on which Prof. Loomis stated the earth's temperature had not changed for the last 2,000 years. Prof. Winlock and he had convinced themselves that they could see distinct traces of an atmosphere around the surface of the moon. Twilight distinctly appeared, and he could only attribute it to the atmospheric influence. At each successive lunation during its earlier part they could perceive the lunar disk bordered as it were by a fringe of light. This surface was distinctly bounded. There was almost as much difference between that and the dark surface of the moon as between the light and the dark rings of Saturn, the only interruptions of this boundary being such as would naturally result from the inequalities on the moon's surface. He could not speak with confidence as to the breadth of that portion, but he thought it must exceed two seconds of time.

Calculating Machine.—Thomas . Hill of Waltham, read a paper the design of which was to show that there were many cases in which the scientific computor could save time without the sacrifice of any desirable degree of accuracy by substituting construction for logarithmic computation. He had at the suggestion of Prof. Pierce produced a machine by which he had calculated 200 phases of an eclipse in ten hours, scarcely varying a minute from the calculations subsequently published in the Nautical Almanac. The method of construction also had this advantage, that any considerable error became apparent to the eye, since a series of results always in construction runs in a regular curve.

Separation of Alcohol from Whisky by Force of Gravity.—Prof. Henry then detailed an experiment which was made at the Smithsonian in consequence of the granting of a patent for the separation of alcohol from whisky by placing a considerable quantity in a vertical tube. The patentee stated that by the use of a tube 100 feet in height he had separated 100 gallons of alcohol in 12 hours. The experiment was made in one of the towers of the Smithsonian, with a gas-pipe 160 feet long, into which stop-cocks were inserted at various lengths. A most careful examination of the whisky at the various heights was made at the end of a few hours, and also at the expiration of some months, but no more variation could be discovered than in different samples of the same whisky not subjected to the process.

The patentee had, however, obtained his patent and sold several rights at a high price. A paper was read at the last meeting of the Association announcing this discovery. The gist of his remarks was that the Patent-Office, the Smithsonian, the Association. and the country, had been sublimely humbugged. (*End of first day's proceedings.*)

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

BRITISH OIL AND OIL OF SPIKE.

As the farmers in this vicinity are much in the use of a nostrum named British Oil, and another of similar virtue called Oil of Spike, I send recipes, that those who wish may prepare them for their use.

BRITISH OIL.

℞ 8 Fluid ounces Spirits Turpentine,
do. do. Oil Linseed,
4 do. Oil Juniper,
4 do. Barbadoes Tar;
Mix thoroughly.

OIL OF SPIKE.

℞ One pint Spirits Turpentine,
Two ounces Oil Lavender,
Four ounces Barbadoes Tar;

Much used for sprains and bruises in cattle and horses.

HYDE PARK, July 19, 1855. ARIEL HUNTON.

ARTIFICIAL STONE.

SCIENCE and art have united, in recent times, in many useful discoveries and inventions that bid fair to make a thorough revolution in the departments of art with which they are connected. Among these, the manufacture of new materials for buildings and other structures, hitherto made only of marble or other mineral, expensive and difficult to work. A fictitious or counterfeit substitute for marble is found in the marbleized iron, which is valuable in its way. A far more valuable substitute is found in the Silexian marble, an artificial composition, which we described some months since, and which promises much. We now are offered another material, which seems to promise great things. A mere view of these products does not enable one to judge of its durability, but the chemical combinations which occur in the mixture of its ingredients do furnish testimony to a great extent reliable, and this testimony in this case is favorable.

The stone to which we refer is that manufactured by the "American Artificial Stone Company," whose works are in Newark, N. J., and are known as the Hamilton Works. The inventor is Mr. Thos. Hodgson, but it is now under the management of a Mr. Wood.

The stone is composed of sand, sulphate of lime, and blood, and produces

an imitation of the old red sand-stone, popularly called freestone, now used so abundantly in our city architecture. The chemical action which gives hardness and insolubility to the compound is thus explained:

1. The sulphate of lime possesses the peculiar property of hardening, after being mingled with water, in the form of powder, so as to form the consistence of cream. If suffered to stand, it rapidly becomes hard, and refuses to yield a second time to the action of water, but is to a great extent in that form insoluble.

2. But the strongest adhesion and its utter insolubility which occurs, is the result of a combination of the potash in the blood with the silex of the sand, forming the silicate of potash, which is insoluble. The iron of the blood also which pervades the mass, acted upon in different ways, unites with oxygen and forms an oxide of iron, insoluble in water. This product grows harder and becomes imperishable by continual exposure to these influences, and is thus made a durable and cheap material for ornamental architecture. By the use of moulds of various kinds, it may be formed, like the Silexian marble, into any desired shapes, whether of statues, bas-reliefs, lintels, trusses, etc. Garden ornaments are also manufactured by this company, although we understand from their pamphlet put into our hands, that their purpose is to sell the moulds, with the right to manufacture, rather than to manufacture themselves.

At a meeting of gentlemen interested in this subject, recently held in this city, remarks were made by Prof. Mapes, so replete with interest, and so thoroughly endorsing and carrying out our own views in relation to a reform in our architecture, as presented in a recent number of this journal, that we present them in full, so far as they bear upon this subject or upon the importance of the invention.

"I conceive the great advantage of this invention to be apart from its durability as a building material: Its use for building purposes will be great; but in addition to this, it will enable us to avail ourselves of the designs of sculptors through all time, for our current use. The mould once made, we may give in a single hour that which required the labor of a lifetime to compose. The study of the arts of design has been materially neglected in our country, and the duplication of these ornaments will have a tendency to correct the evil; for when the finest designs shall be found covering the exterior of our buildings, the eye of the rising generation will, without its volition, be educated to recognize the finer class of forms. Look at France, as an example: she warred with half Europe, without colonies to pay tribute, or agricultural products to export; and all this arose from her placing Christendom under contribution for her arts of design. Napoleon made the arts of design a part of the common-school education of France; and every apprentice, while he learned to read his language, also learned to comprehend the beauty of graceful forms, until even the silversmith of England found it his profit in copying the designs of the tinsmith of France; for up to the time of Wedgewood, every piece of pottery made in England was but a copy of the grotesque forms of those made by the Chinese. Wedgewood introduced a school of design in his factory, and thus rendered the manufacture of porcelain, china, etc., one of the greatest industries of his country. At one time, three quarters of the members of the Royal Academy who had received the degree of Academician, were found to have emanated from Wedgewood's school.

Last year, we imported twelve hundred thousand dollars worth of French furniture, the wood and workmanship of which was inferior to our own; but

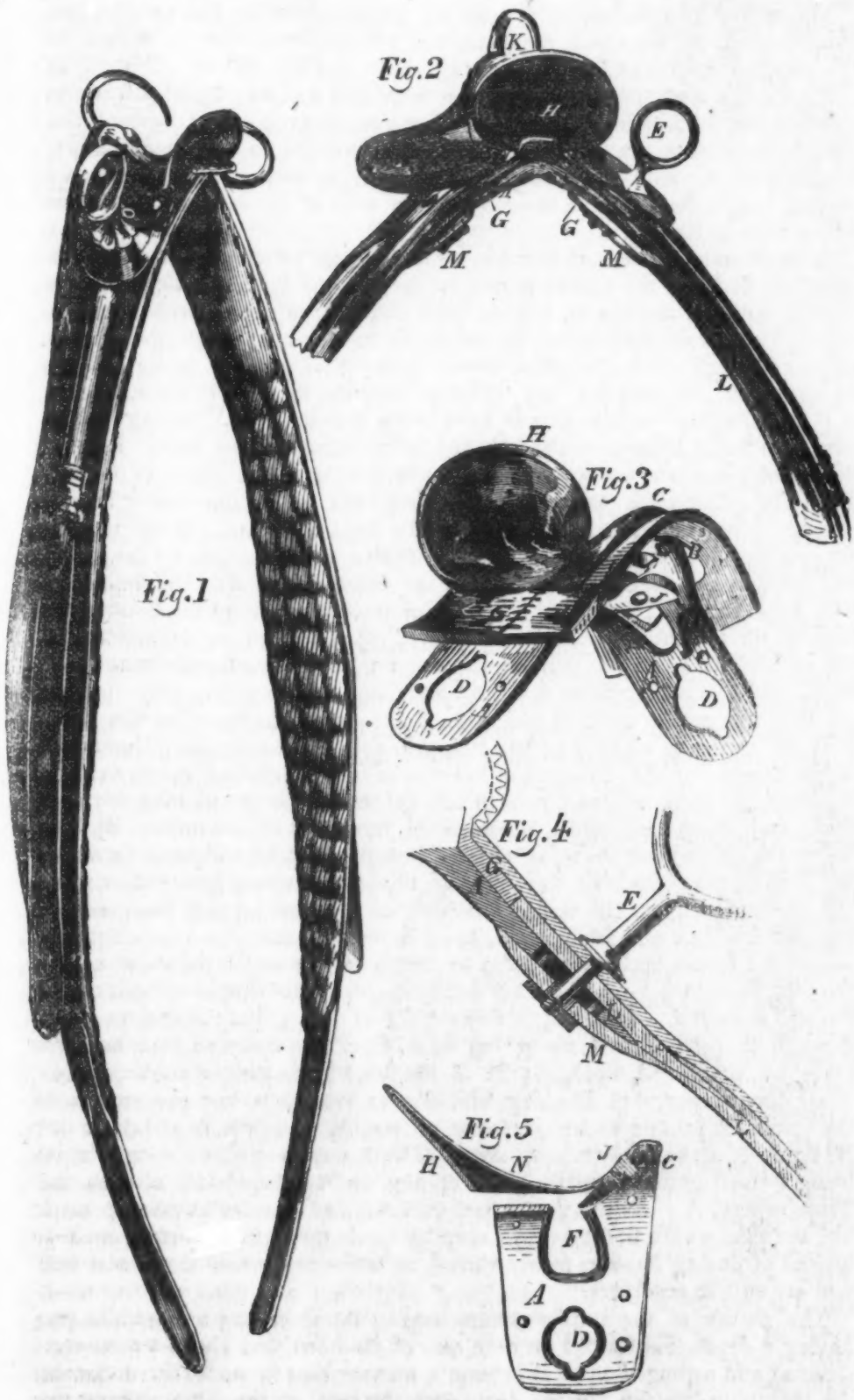
the designs were more graceful; and our wealthy citizens will continue to pay for these designs until our mechanics shall become better educated in the arts of design. Rest assured the eye may be cultivated even beyond its own volition. He who can draw the letter S (which is an approximation to Hogarth's line of beauty) with accuracy, can never be guilty of building an ungraceful utensil. Look about this room, observe the figures of the carpet, the curtains, the form of the girandole, and the graceful form of the backs of those sofas, and you will find that all these designs were originally taken from the French, before which our furniture was grotesquely square and wanting in beauty. A pound of American cotton is still returned to us from France a thousand times increased in value in the form of French laces embracing French designs. Even French calicoes of new patterns when first introduced, are purchased by our wives and daughters at a price which pays the French manufacturer four hundred per cent. more for his designs than we can procure for calicoes of the same quality with designs of less beauty.

"From all this you may readily perceive, that when Mr. Wood shall have ornamented the exterior of our houses with copies of the finest designs, more cheaply than we can now use the plainest surfaces, the eye of our youth will become educated with these beautiful forms, until our cabinet-makers, blacksmiths, and so forth, will produce designs of greater beauty than those now made. At this time the frames of steam-engines and other machines are parallelograms supported on straight legs, while the line of force is often in another direction. Why should we not copy such forms as are suggested by Nature's laws; When a lion leaps from an eminence, his foot represents the smallest amount of material arranged in such form as to exercise the greatest amount of resistance.

"And why should not these be copied in the frame of every steam-engine? Why should not our mantles be sustained by caryatides, figures of Hercules; or, at least, some figure indicative of strength? Why should our doorways be square frames, requiring but a rope suspended in the middle, to imitate a gallows? Fortunately these remarks will not apply to the doors of this room. Ornamental architecture may, ere long, relieve us from the use of square rooms, causing us to feel as if confined in a packing box, with a window in its side. All angles may be relieved by ornament, until this feeling of confinement is done away with.

"The invention of Mr. Wood will be one of the greatest engines to relieve architecture of its sameness, and will entitle him to the thanks of the public. Its beauty is in its simplicity. It carries with it, its own rationale, for success, and after time has permitted all the necessary chemical changes to take place, it will then be found capable of being immersed in water without change.

"When we examine the structures built by the Romans, we are surprised to find the mortar harder than the stones; but by reference to Vitruvius, we find that the Romans made their mortar many months before its use; that the quantity of lime used was much less than is now applied; but that immediately before its final use, it was beaten with cleaver-shaped pieces of wood, until the Silicate of Lime formed, was fairly and evenly divided throughout the mass; and that its peculiar hardness arises from the absence of any excess of lime, and the perfect conversion of the small amount used into the silicate; which fact is analagous to the rationale we have already explained, as belonging to the invention of Mr. Wood. The finest of our Fifth Avenue houses may be imitated or improved upon, with this material. We want but the moulds, and the duplicates can be rapidly and cheaply furnished."



IMPROVED HARNESS SADDLES AND TREES.

THE annexed engravings represent an improvement in first-class harness saddles and trees, for which a patent was granted to Robert M. Selleck, of this city, on the 7th of last November.

Figure 1 is a perspective view of the improved saddle; figure 2 is a perspective view of a saddle partly finished, viewed from the rear; figure 3 is a perspective view of the tree as prepared for the saddler to work upon; figure 4 represents one-half of a partly finished saddle in section, and figure 5 is a vertical longitudinal section, showing the tin seat of the saddle. The same letters refer to like parts.

A represents the cast-iron frame or tree, upon which the saddle is constructed; B B are the shoulders cast on the sides of its head, C; D D are circular holes for the terrets, E E, to pass through, as represented; F is an oblong slot cut through its top for a tongue or tack-hold on the gullet piece to pass through; G is the gullet piece. It is provided with an opening in its center, and fits over the tree. This gullet piece fits against the shoulders, B B, and its top surface stands even with the head, C. Owing to the shoulders being formed on the tree, the full thickness of the leather forming the gullet piece can be employed without increasing the thickness of the saddle. The gullet piece can also be extended back under the cantel, H, and crupper, I, and be made to form part of the flaps, as shown. If the shoulders were not formed on the tree, the gullet piece would have to be skived off, and fitted in and tacked to the front of the frame or tree after the flaps have been fitted in their places, and the edge of the piece uniting the flaps at the back of the tree will also have to be skived off and fitted in and tacked to the back of the tree, as is done in constructing saddles on the common wood trees. By this arrangement the front and back of the gullet piece on the common tree can be made in one, and of the same thickness as the flaps, L L, and owing to no tacking and fitting-in being necessary, can be arranged on the frame by the tree-maker before the tree is delivered to the saddler, and made to serve as a tack-hold or soft substance for the saddler to work upon, and when the saddle is completed, form part of the flaps. By thus fitting the gullet piece the bolts which secure the crupper will serve for securing it in its place, and the back edge of the leather which covers the saddle can be secured under the cantel, instead of to the back edge of the tree, and considerable time and labor saved, and a more solid and also a much handsomer and neater appearance given to the back portion of the saddle; J is the tongue or tack hold, to which the front end of the leather which covers the seat is tacked. This tongue forms part of the gullet; it passes down through the slot, F, and under the head, C, of the tree, and is secured in place by the gullet hook, K; M M are tongues formed on the flaps, L L. These tongues serve as blocking, and also as receptacles for the sockets of the terrets, it passing under the frame or tree, A, while the flaps lay on it; N, figure 5, is the false tin seat, arranged on the cantel (which owing to its being formed by itself, can be made of any desired shape) and also on the frame or tree, A. As this seat is made of tin, and can be struck up on a die, the part which fits the cantel may be made to form a perfect circle—instead of having its sides nearly verical, as is the case when the cantel and seat are cast in one piece.

The nature of the improvements consist, 1st, in a cast-iron saddle tree having a depression formed on each side of its head, and a gullet piece constructed and arranged upon it in such a manner that it can be fitted flat on the tree, with its top surface even with the head of the same, without the necessity of its being skived down and tacked to the front and back of the

tree, as when placed on a wooden tree. The gullet piece can also be extended back under the cantel and crupper, and secured, and a portion of it can likewise be secured and carried under the head, and by the gullet hook. By extending the gullet piece backwards it is made to form part of the flap, and owing to its being thus extended, and a portion of it carried under the head, it serves as a tack hold to work upon in covering the seat with leather. The second improvement consists in providing the flaps with tongues, which pass under the lower parts of the frame while the flaps pass over it. By thus constructing the flaps, no other blocking than that afforded by the tongues is required under the frame. A third improvement consists in making the seat of tinned sheet iron, and separate from the cantel. This invention possesses manifold advantages over anything heretofore known. As it enables the most ordinary workman to make a first-class saddle on an iron tree. Heretofore none but the best workmen with safety could be put to work on a first-class saddle. Saddles can in this manner be made of greater symmetry with increased strength and durability. The tree itself can be afforded at a much less cost than heretofore, and a saving of about half a day's labor on each saddle is effected, and thereby saddles of the first-class can be afforded at the same price as one of the second-class made on an ordinary tree.

More information may be obtained of Mr. Selleck, at his place of business, 253 Pearl street, this city.

NEW BUILDING MATERIALS.

A GENTLEMAN exhibited to *The Traveller* a few days ago a very beautiful specimen of a new description of brick, which, if all that is said of it be true, may probably effect quite a revolution in the building trade. The bricks in question are formed of lime and sand, and are the invention of Mr. Ambrose Foster. Acting on the established fact, that hydrated (wet) lime, when exposed to the action of the atmosphere again, takes up the carbonic acid which it lost in the process of burning and slacking, and so becomes indurated, Mr. Foster set himself to work to find out the proper proportions of sand and lime to form a species of sand-stone. These he found were one part lime to twelve of sand. He also found that in order to effect a more perfect combination, the lime and sand should be mixed together in a nearly dry state. The mixture is then run into moulds, and subjected to great pressure, as much indeed as 120 tons upon a single brick of the ordinary size. When placed out in the atmosphere, a chemical change begins. The moisture of the atmosphere enables the lime to again take up the carbonic acid, and the whole is transformed in the course of a few days into brick of remarkable hardnesss, ready for ordinary building purposes.

The surfaces now present the appearance of a whitish sand-stone, while month after month, and year after year, the same chemical changes are going on, and the bricks become harder and harder, till at last they are said to be as indestructible as granite itself. The bricks are also, from their nature, impervious to damp, and one great advantage is, that from their smoothness and beauty, lathing and plastering becomes unnecessary, and the outside and inside of a wall is made at the same time. Owing to their

great strength and hardness, these bricks can be manufactured with perforations, as in the specimen which was shown to us. This is a saving of material, and gives many other advantages.

Lime and sand, it is well known, are more plentifully scattered than the clay from which the common brick is formed, consequently Mr. Foster's invention will materially decrease the cost of building, since by the machinery of manufacture, which is portable, they can be made in almost all localities more cheaply than the most common brick. Metallic oxides may, where necessary, be incorporated with the materials so as to give any shade or colors required, or produce an almost indestructible imitation of any kind of marble or stone.

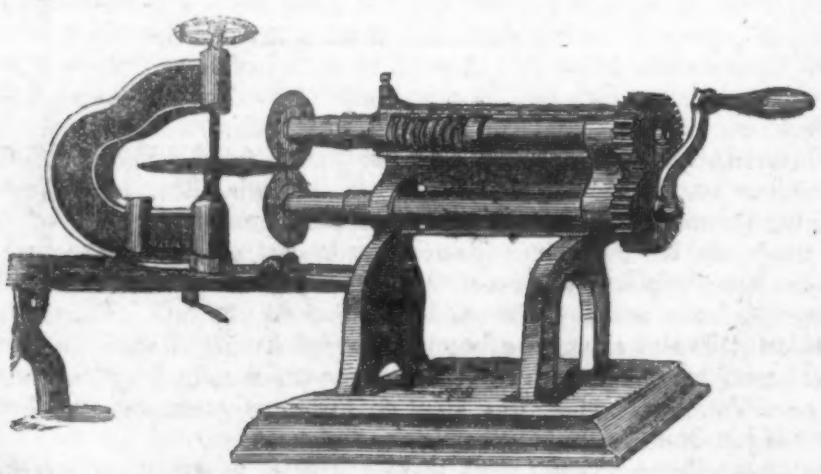
We understand that M. & J. H. Buck & Co., of Lebanon, New-Hampshire, who are the agents of the patent and manufacturers, are about to erect a dwelling-house in North Danvers, of this new material. An opportunity will thus be afforded of testing its strength and durability.

SOCIETY OF ARTS EXHIBITION IN PARIS.

The London Practical Mechanics' Journal contains an illustrated chapter on the details of this exhibition.

Photographic Views of Carriages.—Harper & Co., Coachbuilders, of the Haymarket, have applied this new process to the production of perspective views of carriages. This gives them a complete portfolio, from which purchasers may make orders, fully understanding what they order, which otherwise, even if reference is made to small diagrams, can scarcely be said to be practicable.

The Circular Plate-Cutting Machine, exhibited by Messrs. Sebley, of Ashton-under-Lyne, is prominent in the collection. The representation of it is here given.



This sketch is a hand machine as it stands on a table. A pair of horizontal shafts, geared by equal-sized spur pinions, are turned by a winch handle, while each shaft has at its opposite end a circular shear-edged cutter. The

plate to be cut is clamped by a central screw in a recessed bracket holder, adjustable to the size of cut desired. The helix upon the upper cutter shaft is to allow of the necessary movement in cutting different thicknesses of plates. Different sizes are made, cutting from six inches to six feet in diameter. One now at work cuts ¼ inch plates to 12 inches in diameter, in ten seconds.

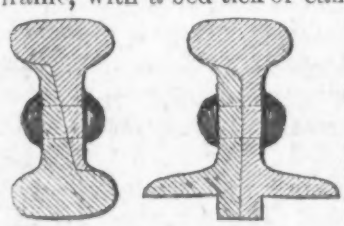
The American Fog-Horn, as used on the Lakes for signaling in dense fogs. "It produces a stunning sound with a mere zephyr breath, and when the full power of the chest is given out, an immense volume of sound is given out."

A Smoke-preventing Furnace, with movable chill-bars, by Mr. Regan, of Liverpool, the object of which is "to give a regulated supply of rarified air to the gases of combustion."

A Railway sanding Apparatus, and Driver's Time-keeper, by Mr. J. Beal, of Chestnut.

The Patent Crystal Window of Messrs. Lloyd & Summerfield, is a very elegant adaptation of glass to a new purpose, the framing pillars of large windows, such as shop-fronts. "Boxwood and Printers' ink will not copy the wonderful hues reflected by such resplendent masses of artificial crystal." These fronts consist of plate glass exclusively, supported by flint glass pillars or sash bars. Hence the transmission of light to the interior of the apartment is perfect. The larger pillars are made in detached lengths, which are bound together to form a single solid pillar, by a metal tension rod, passing through the centre from end to end. This binding is covered by a silvered tube, which materially adds to the luster of the glass.

The Hand-barrow Ambulance is scarcely more than a wheelbarrow frame, with a bed tick or canvas instead of a wooden floor, properly pillowed, the wheel of which is capped, for carrying the sick and wounded. The wheel may rest on springs.



Mr. Jee's Continuous Rail, for railways, represented in the margin, is simply a rail in longitudinal halves or sections, fastened together by bolts or rivets to produce a solid rail.

Steamboat Statistics.—The Cincinnati *Gazette*, of Friday, publishes an interesting statement prepared by W. W. Guthrie, Esq., Local Inspector, showing the number of steamboats in existence on the Western and Southern rivers, and the number of disasters for the six months ending June 30th, 1855. From this it appears that 39 boats were totally lost. The estimated damage to boats was $573,700, and to cargoes $1,229,800. Thirty-one lives were lost. Twelve steamboats were destroyed by fire, 7 were damaged by ice, 52 were sunk or damaged by snags, 5 were damaged by explosion, and 7 by collision. The whole number of boats on Western and Southwestern rivers is put down at 600. Mr. Guthrie says:

"It is worthy of remark that there has been no explosion or collapse of flue of any boiler manufactured since the passage of the law by Congress of August 30th, 1852, and coming under the reduction of steam pressure. In every instance, the disasters have been from boilers made previous to the passage of that law."

PRINCE'S PROTEAN PEN.

We are now permitted to give a representation of this "Fountain Pen," and do not hesitate to revert again to it as an invention of great value.

We were in error in describing the interior spring as gold. It is all of vulcanized rubber, "Goodyear's patent," and beyond the power of any acid to corrode or injure. We have now used one of these pens for some two months, and so pleased are we with it that we are dissatisfied when obliged to take up any other, for continuous use. If we would write only a receipt, (a duty too seldom called on to perform,) or other similar service, any pen answers the purpose. But we have now been writing some two or three hours; and had we been obliged to use a common metalic pen, after the experience we now have, we should deem it a real misfortune. The letters are formed with a gold pen, selected like any other, to suit your own taste. But we are saved the danger of spilling ink upon our table from the pen, or upsetting the inkstand, and from reaching after ink, and can occupy the entire table with books, or papers, or other conveniences, as we may wish. We have filled our pen one day and used it for two days in succession, without having recourse to the inkstand. True, we did not write a quire of paper during that time, though we covered several sheets on each of these days.

Read again what we have said heretofore on this subject, and send the bill to us for damages, if, on trial, every word we have written is not literally true. We never commend anything in these pages further than we are willing to be judged by the results. Nor have we any kind of interest to advance by giving publicity to these statements.

The following directions for its use are given us by the inventor:

"To fill the reservoir with the PISTON, remove the cap by turning it like a screw, insert the pen in the ink half an inch or more, draw up the piston, then with the thumb and finger on the lower part of the piston, draw it up tight into the head of the tube that it may neither move nor allow any pressure of the air. *Wipe the pen with a soft cloth or paper after filling and whenever the cap is removed.*

"The piston is not to be pushed down until the ink is entirely exhausted. To push it down, place the thumb and finger just above the tube, that the piston may not be broken.

"Put the cap on lightly when the pen is not in use, to preserve the ink from drying; and screw it home to its shoulder when carried in the pocket.

"To fill the reservoir by SUCTION, (the mode adapted to pocket pens,) loosen the small screw at the upper end, but do not take it out; insert the pen in ink, as above; apply the lips to the small screw, exhaust the air by suction, and while the pen remains in the ink, turn the screw until it is in tight. Or, loosen the screw, insert the tube in a bottle of ink, let it remain until the ink has found its level in the tube, then turn the screw until it is tight, and the pen is ready for use.

"The suction pens should be carried in the pocket with the cap upwards.

"Use good ink, free from sediment: Headly & Field's American Fluid, also Bryan & Wilcox's, and Arnold's Fluid Ink, recommended to the public, as they will copy."

American Patents.

TALBOT'S IMPROVED LOOM.

Mr. William Talbot, a practical manufacturer in Willimantic, Ct., has lately made some valuable improvements on the loom, adapted to facilitate and perfect the weaving of bags, ducks, diapers, twills, checks and cassimers. His letters patent are dated November twenty-eighth, 1854. The primary idea of the loom is that of the Jaqueard and the endless chain, so modified, compacted, and so easily arranged and managed, and so quickly adapted to so great a variety of weaving, as to win the approbation and admiration of the most expert workmen in that department of manufacturing.

One great value of this patent, we imagine, will be found in the weaving of bags and pillow-cases, making them *positively uniform*, an achievement of great difficulty, because of the great number of picks in both, and the necessity of measuring those picks, and thus securing a proper bottoming. The improvement can be so arranged, in a very short period of time, as to weave bags, twilled or plain, of exactly uniform length, or of exactly an equal number of picks, day after day, or rather through beam after beam, making a real and strong bottom to each. Those engaged in making bags will easily see the worth of this improvement in the department of weaving. The cards of the Jaqueard and the endless chain are dispensed with by Mr. Talbot, in weaving large patterns. Their places are supplied by two cylinders, the rotary action of one being used in making the body of the bag, and the action of the other being used in making the bottom of the same—the action of the one cylinder giving motion to the other cylinder when the first is desired to be motionless, and the second is desired to be in action.

Another fact about the loom is, that it weaves with a *shed opening both ways;* not a peculiarity indeed, but a fact which every manufacturer of goods, figured in weaving, may desire to know. We have seen a loom in operation having seventeen harnesses, and the shed was broad open, for the free and easy passage of the shuttle, without any great tension of the warp.

The open shed, moreover, is connected with such a particular motion of the harnesses, that when any one or more are either up or down, they have a pause in their motion; a short pause, indeed, but still of great value in giving time for the shuttle to race through its course. In most looms, when a harness attains its greatest height in weaving, or its lowest point, it is made *instantly* to move to the opposite point. This improvement, on the contrary, gives the harness a moment's pause when it is either up or down in its motions.

Connected with this fact of a pause in the motions of the harnesses, while they are at the highest or lowest point, is this other fact, that this improvement secures such a *compensation* of *motion*, as to require but a moiety more power to run it than is needed in the lighter and plainer looms. One or more harnesses up-balance an equal number which is down; and very little power is needed to make them change places, so perfectly is compensation secured.

This peculiarity stands connected with another, which is, that the loom, while moved with little power and noise, can safely and properly be made to move with very great speed. We have seen it going at the speed of one-hundred and thirty picks to the minute, and we know that it can be tended with the ease of the common loom.

The cost of applying this improvement to a common satinet loom is about forty-five dollars; and a new loom constructed after this patent may be made at a cost of one hundred dollars, or thereabouts. It only remains for us to say, that one gentleman, a distinguished weaver and designer, looking upon the loom in operation, says: "On that loom I can weave anything." Any person calling at our office, No. 9 Spruce street, can see some beautiful specimens of its work. One or all the improvements have been adopted already in several celebrated mills. We deem it equal to any discovery made in weaving during the present century. Particular information may be had by applying to Messrs. Rollinson & Talbot, of Willimantic, Ct., or to Messrs. Howe & Converse, Stafford, Ct.

CONTINUOUS WOOLEN SPINNER.

Mr. A. E. Bigelow, manufacturer, in Rockville, Ct., has lately invented and constructed an improved woolen spinner, to which he has given the name placed above. For his improvements, letters patent were issued in the spring of 1855. It has been been our pleasure to see it at work; and we are pleased to say, that it meets the expectation and excites the admiration of woolen spinners. It strikes the beholder as being a woolen ring-traveler spinning-frame, and such, indeed, it is. The advantages claimed for the "Continuous Spinner" over the jack, are quite numerous and obvious. A spindle in this frame will do twice the work of one in a jack, in the same length of time; and hence a thousand spindles running after this mode of spinning, will do the same work, in a given time, which is done by two thousand jack spindles. Then, again, space is economized by this improvement to the amount of fifty per cent.—a very great gain. The spindle revolving on a stationary point needs not the room of the jack spindle, which moves outward from the strand. Another excellence is, that the Continuous Spinner economizes in the account of help, a child ten years of age turning out as much yarn in a specified time as can be turned off from jacks by two men. Add this to a large saving on account of waste, which is eighty per cent. less than on ordinary jacks, and we have the sum of the advantages claimed. Any person inspecting the machine in operation, and having only a moderate acquaintance with woolen spinning as it is performed on jacks, will easily see that the the claims set forth in the foregoing statement are not exaggerated. Mr. Daniel Painter, of Worcester, Mass., Mr. Geo. Kellogg, Jr., of Rockville, Ct., and Mr. Carlton Grant, of the latter place, give the spinner their positive recommendation. It seems well adapted to fulfil its promise, and make woolen spinning more simple and economical. One frame spinner of one hundred and twenty-eight spindles has been in operation some two successive years, and it may now be seen at the Florence Mill, in Rockville. Manufacturers of wool, who have occasion to use yarn, should give it an inspection. Particulars may be learned from the patentee, H. E. Bigelow, Esq., of Rockville, Ct.

India Rubber Lining of Ships.—Mr. J. P. Corbett of New-York, has patented a plan of lining vessels with a continuous coating of India Rubber, as a safegnard against leekage. The space between the frame and the lining is filled with the rubber.

MINNIÉ AND SHARP'S RIFLES.

An account is given in *The Traveller*, of the rifle manufactory of Messrs. Robbins, Lawrence & Co., of Windsor, Vt. It is situated in Hartford, Ct. We have seen the workmanship of this company, and have long known their great reputation as manufacturers of fire-arms, and we are sure that they stand, deservedly, among the best artists in their kinds of work, therein described, in this country. The following is the account referred to:

"One mile southwest of the State House, on the banks of Little River, stands the manufactory of Sharpe's rifle, and the Minnié rifle. This establishment is owned by Robbins, Lawrence & Co., of Windsor, Vt., where they carry on large works for the manufacture of pistols, rifles, and machinery. The establishment here as there, is admirable for its perfection and system. Those who have a taste for such things, and love to see the triumph of mind over matter, cannot fail of satisfaction in witnessing the march of a rifle from its elements of rude iron and wood to its perfect state—much like the mock development of a rose in the magic lantern, from bud to full blown flower, in a minute. Thus:

"A flat bar of iron, two feet long, and weighing eight pounds, is started at one end of a series of fourteen trip hammers, which strike eight hundred blows a minute. In its progress it is flattened, lengthened, rounded and welded. It then passes through a series of borers, by which the inner surface is smoothed, polished, and the spiral grooves cut. A series of lathes then polishes the outer surface. Other processes prepare the lock and its appendages. The stock, of black wallnut, which comes rough from the forests of Ohio, passes rapidly through its own metamorphosis by appropriate machinery. That for cutting the putch-box and the inlets for the lock is wonderful. It consists of a frame having a lateral motion, in which is inserted a series of drills moving perpendicularly, each in its turn, as the frame moves laterally. What would require a man with hands and many tools an hour, or more likely two honrs, to accomplish, is here done in two minutes. What I have described, relates, as to the barrel, to the Minnié rifle.

"Sharpe's rifle is a lighter arm for horsemen and sportsmen, neater, shorter, and more perfect. The barrel, instead of wrought iron, is made of cast steel, and the calibre is bored from a solid cylinder. This arm has received the approbation of the government over all others of the species. The excellence consists, not only in the perfect adaptation for load at the breech, but in the apparatus for priming. A cylinder two inches long, and as large as a pipe stem, contains fifty flattened caps, resembling spangles on a lady's fan. This cylinder, inserted perpendicularly on the top of the breech, rests on a spiral spring pressing upwards. After each discharge, and at the recocking of the gun, a delicate slider removes a cap from its cylindrical pipe, and fixes it on the vent, ready for another discharge. The ball is solid and conical, attached to the cartridge by a string. The cartridge and ball are two inches in length. The operator provided with cartridges at his side and rounding at the breech, if he is practised, can discharge the piece eighteen times a minute. The ball of the Minnié rifle is hollow, that it may the better expand into the grooves, and form a slug.

"This company are making large quantities of arms, which indirectly find their way to the British government and into their army. They also make much machinery for British manufacturers. I understand that many machines used in this establishment are as yet hardly introduced into Great

Britain. These works, though standing on a stream, are moved principally by steam. One engine is of sixty-horse power, and another of forty-horse power. It is interesting to see how in this region steam is taking the place of water power, as railroads have of canals. At New-Britain, a sluggish stream first started their manufactures, but now is almost entirely unused."

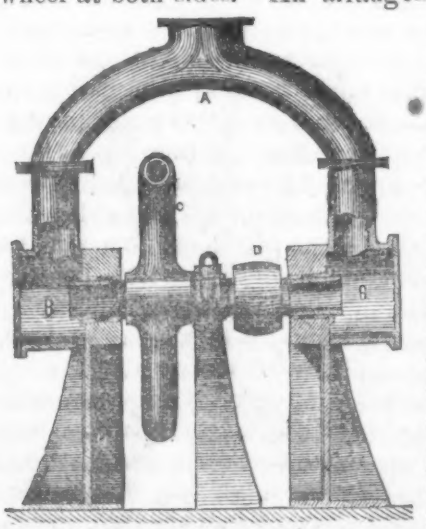
PRINTING IN COLORS.

Printing in colors is an art which has been carried to great perfection by several processes, and several machines have been lately devised for cheapening and expediting the work. Mr. Samuel Brown, of Syracuse, N. Y., patented a press, the practical operation of which is little known beyond its immediate locality, but which is capable of printing four colors at one impression, and will throw off about 500 impressions per hour. The press is on the "platten," or "flat impression" principle, and in general appearance it somewhat resembles the Adams press. Each colored ink is distributed on a separate roller, and all move horizontally across the form at the same time, but at different levels; the blue roller, for example, being beneath the black, and the yellow and red ranging still further below. Those portions of the "form" which are to be of any given color are "locked up" in separate small "chases," and as the bed of the press sinks down after each impression, these chases are stopped by pins projecting from the sides; each at their proper level, to receive the desired color. Only one of these presses is yet in operation; but, although evidently somewhat clumsy, and liable to derangement, the specimens of work done are very creditable, and give promise of very favorable results in the coarser kinds of colored work.

A polychromatic press, far superior to this for every variety of small work, has been patented and set in successful operation by Messrs. A. M. & G. H. Babcock, of Westerly, R. I. In this press the paper is laid on a revolving cylinder, or rather parallelopiped, with four flat faces, and it is firmly held by the usual means. The paper is laid on the upper face, after which a quarter revolution presents a new face to receive paper, and presents the paper already laid to the action of a form which moves horizontally from the side. Another quarter revolution presents this first sheet to the action of another form, rising from beneath, of a different color, and a third movement gives it a third impression. A fourth movement presents it at the top again, when the printed sheet is removed, and another laid on. The three forms, one form on each side, and one form beneath, move up simultaneously against the three faces, whilst the hand of the attendant is occupied in changing the paper on the fourth. The inking rollers, of which, of course, a separate set is provided for each form, perform their duties admirably, moving once backward and forward over the form, whilst the paper cylinder is changing positions. The "register" of this press is perfect, a point of the first importance in color printing, as the slightest misplacement of an impression frequently ruins what would otherwise be a fine effect. The work is performed rapidly and well, yet without violent motions of concussions, and the number of inks employed is three, although, by a trick well known to the craft—allowing some lines to receive two full and perfect impressions, thus superposing one color upon another—six actual varieties may be produced. Patents for the United States have been secured, and measures are taken to secure patents for the British islands.

English Patents.

HYDROSTATIC MOTIVE POWER ENGINES.—Considerable power is derivable from a Barker's mill, but, from some hitherto unknown cause, as beneficial a result has never been obtained from it as from an equal expenditure of water in other machines. I conceive that this description of engine has thus failed to realize theoretical expectations regarding it, on account of a serious defect in the construction. In an ordinary Barker's mill, the water is admitted to the center of the wheel at one side only; consequently, as the pressure due to the fall of water exerts itself in all directions within the wheel, and the ducts leading to it, it follows that there will be an unbalanced pressure tending to force the wheel away from the duct, and causing immense pressure and friction against the bearings on the opposite side of the wheel to that at which the water enters. When the cause of the defect is explained, the remedy at once suggests itself, and consists in introducing the water to the wheel at both sides. An arrangement for carrying out this improvement, which has lately been patented by me, is represented in the accompanying engraving. Here the water is conducted to the apparatus by a pipe, A, which branches off to two boxes, B. These boxes are on opposite sides of the wheel, C, which revolves in a vertical plane. The shaft of the wheel is hollow from end to end, and its opposite ends are entered through stuffing-boxes into the boxes, B, and the water enters into the body of the wheel in equal quantities from each side, so that there is no lateral pressure whatever on the bearings, and the wheel is enabled to give off its full power, which is communicated to the machinery to be driven by means of the pulley, D. The wheel, C, here represented is of the simplest kind, being composed of two hollow curved arms, from the ends of which the water is ejected, causing the wheel to revolve. The improvement is, however, obviously applicable to various descriptions of turbines and other hydrostatic motive power engines.



DULWICH, February, 1855. C. TETLEY.

STEAM-ENGINES AND GOVERNORS.

J. W. HAGXWORTH, *Darlington.—Patent dated September* 9, 1854.

THIS patent comprehends various modifications of the general details of steam-engines, as more especially intended for stationary and marine purposes, with the view of securing proper efficiency of working action.

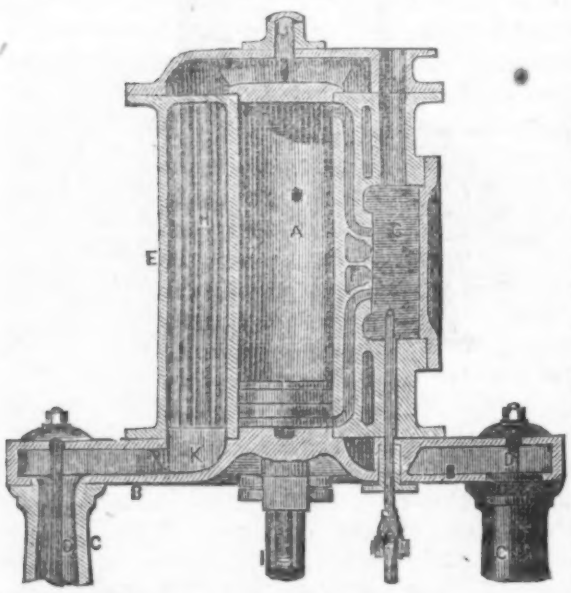
One detail of these improvements relates to a "Duplex Over-end Crank," to be used instead of the ordinary crank arrangements of steam-engines. This double crank is made by keying or forging on, the end of the main shaft, a plain crank arm of the usual kind. The opposite end of this crank is formed with an eye to receive a stout crank-pin (answering as the working pin for one steam-cylinder,) which is forged in one piece with a second arm, or lighter crank lever. The other end of this secondary arm has forged upon it a

second crank-pin for the other steam-cylinder. The stouter pin of the secondary crank arm is fixed into the eye of the first crank, so as to set the two arms at a considerable angle with each other, or at a right angle, as may be desired. The slide-valve for each steam-cylinder of a pair of engines may be worked from a spanner, keyed on the end of the secondary crank-pin; the other end of this spanner being directed back as far as the center of the shaft, whilst it terminates in a solid pin set true with the axial line of the main shaft, upon which-two eccentrics, two eccentrically disposed pins may be used.

The steam-cylinders for actuating this "Duplex Over-end Crank" are disposed, one on each side of the main shaft, opposite to each other, and nearly in the same straight line. The axial lines of the two cylinders must vary sufficiently in the plane of the shaft, to allow for the thickness of the second crank, in addition to one-half of each crank journal. But by cranking the second crank lever, the distance may be diminished.

Another portion of the improvements relate to a system of economizing steam power, by means of an arrangement which is represented in vertical section in fig. 1 of our engravings. Here an inverted steam-cylinder A, supposed to be placed vertically above the shaft which it drives, is supported upon a hollow cast-iron platform, or table, B, the central portion of which is shaped to answer as the bottom cover of the cylinder with the piston-rod stuffing-box cast upon it. The table, B, is carried by four hollow cast-iron pillars, C, being held down by long bolts, D, passing to the base frame below. The steam-cylinder, A, is cast in one piece with, or it may be otherwise attached to, an outer cylinder, E, arranged to enclose an annular space round the cylinder, A. The exhaust port or ports, F, in the valve casing G, communicate with this annular space, into which the exhaust steam from the steam-cylinder consequently enters. A number of tubes, H, are passed vertically through the space between the two cylinders; and they communicate with spaces above and below the cylinders, and through these tubes the feed-water is made to pass on its way to the boiler, being pumped up from below by the pipes at I, and passing off above by the pipe, J. It follows from this arrangement, that the exhaust steam surrounding the steam-cylinder, A, will prevent loss by radiation of heat therefrom, and will, at the same time, communicate a portion of its heat to the feed-water rising through the tubes, H. The exhaust steam, and any condensed portion of it, finally passes off by the bottom port, K, which communicates with the interior of the hollow table B, and with the hollow pillars, C, being thus spread over a large extent of metallic condensing surface, and finally, finding its way to a cistern below. The arrangement just described is obviously most suitable for a vertical

FIG. 1.



steam-cylinder; but the apparatus may also be adapted to steam-cylinders arranged in other positions. Thus, with horizontal steam-cylinders, the tubes, H, may be bent round across the steam-cylinder, but it is preferred in all cases to have these tubes as nearly vertical as possible.

The patent also covers a new form of governor, which is represented in vertical section in figs. 2 and 3, and consists of a three-branched vessel or pipe, A, carried upon a vertical spindle, B, supported and driven in the manner usually employed with ordinary ball or pendulum governors. One, C, of the three branches of the vessel, A, rises up centrally and vertically, whilst the two other branches, D, run out, upwards and laterally, on opposite sides. The central branch, C, is bored out cylindrically, and inside it works a plunger, or heavy float, E. A rod, F, passes up from the float, E, through a hole in the

FIG. 2.

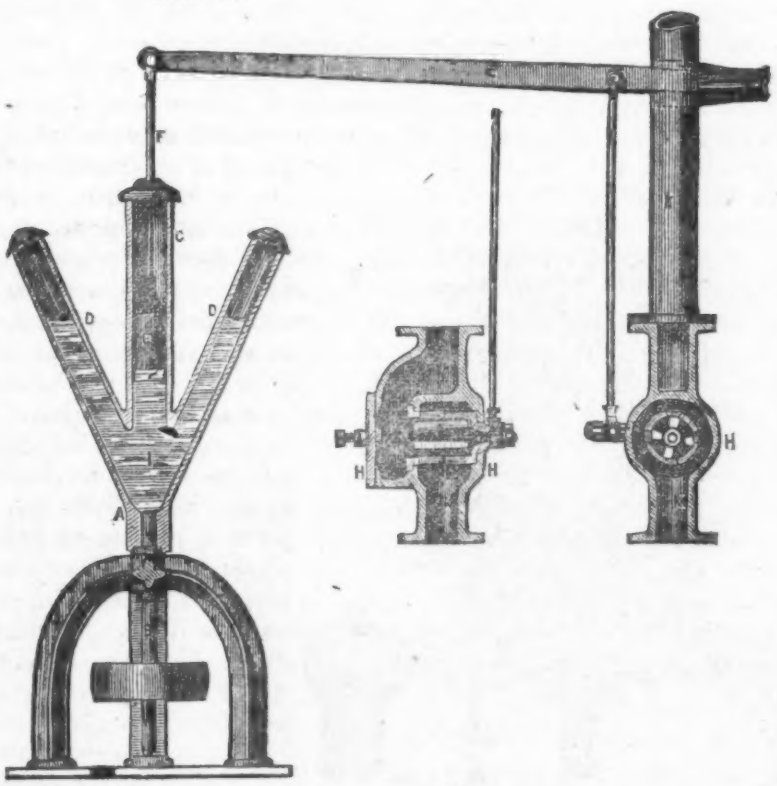


FIG. 3.

cover of the pipe, C, and is joined to the lever, G, which transmits the regulating action of the governor to the throttle valve, H. A quantity of mercury, I, or other suitable fluid, is placed in the vessel, A, which mercury fills the three branches to the same level when the governor is at rest. On the governor being caused to revolve, however, the centrifugal action causes the mercury to run up the lateral branches, D, and to sink to a lower level in the central branch, C. If the governor is driven beyond the proper rate, the mercury will sink so low in the central branch, C, as to allow the float, E, to descend, which movement will act on the throttle-valve connections in such a manner as to partially close the valve, and diminish the supply of steam to the engine. Contrariwise, when the governor revolves at too low a rate, the mercury will sink in the laternal branches, D, and rise correspondingly the central branch, C, lifting the float, E, and thereby causing the throttle-valve

to open further, and give an increased supply of steam to the engine, to enable it to recover its rate. The throttle-valve, H, represented as in connection with the improved governor, is also constructed according to one portion of the invention. The valve seating consists of a cylinder, J, fitted into the steam-pipe, K, in such a manner that one end of the pipe communicates with one or both ends of the cylindrical seating, whilst the other end communicates with the circumference of the seating; the stream having to pass through the cylindrical valve seating on its way to the cylinder, this passage being effected through slots in the seating. The spindle, L, of the valve passes through the axis of the seating, and carries a number of radial feathers corresponding to the slots in the valve seating, J, and turning on their circumferental edges to work upon the turned inside surface of the valve seating. The valve is thus balanced as regards the steam pressure, which can in no position have any tendency to shut or open it, or prevent its being shut or opened, by the least possible force applied to its lever.

In addition to the above, Mr. Hackworth also describes two arrangements of reversing gear for mining and similiar engines.

MISCELLANEOUS.

SALERATUS.—The *Medical Examiner* reviews at some length the statement of Dr. Alcott respecting the poisonous effects of saleratus used in food, and after carefully examining the statements, closes by saying—what is perfectly correct, in our judgment—that "there can be but little doubt that the dangerous properties attributed to saleratus by some persons, exist entirely in their imaginations."

PATENTS GRANTED.—In 1841, there were 847 applications, 312 caveats, and 495 patents were issued. In 1847 there were 1531 applicants, 533 caveats, and 572 patents issued. In 1852, 2,639 applicants, 996 caveats, 1,020 patents issued.

SHIP-BUILDING.—The number of vessels built in the United States, in certain years, is given in the census returns, as follows:

1815, 136 ships, 224 brigs, 680 schooners, 274 sloops and canal boats. Total 1,314; tons, 154,624.

1829, 44 ships, 68 brigs, 480 schooners, 145 sloops and canal boats, 43 steamers. Total 785; tons 77,098.

1852, 255 ships, 79 brigs, 584 schooners, 267 sloops and canal boats, 259 steamers. Total 1,444; tons 351,493.

STEAM TONNAGE OF UNITED STATES.—The steam marine of the United States by the report of the Secretary of the Treasury in 1852, consisted of ocean steamers 96, ordinary 382, propellers 67, ferry-boats 80. Total 625, tonnage 212,500. The inland steam marine consists of 767 steamers, of 274,723 tonnage.

J. B. WICKERSHAM is at his old stand, 312 Broadway, and is agent of the NEW-YORK WIRE RAILING WORKS. He has a fine book of specimens of capitals, fences, fire-frames, chimney-pieces, girders, gratings, bedsteads, etc. The volume will be forwarded to any order, enclosing a shilling or four postage stamps.

New Description of Silver.—A French *savant*, M. Sainte Clair Deville, has succeeded in obtaining from the aluminum in common clay a metal which rivals silver in beauty, and surpasses it in durability, not to mention other qualities. It can also be produced in masses sufficient and cheap enough to replace copper, and even iron in many respects, the cost of extracting it, owing to recent discoveries, being only about forty cents the pound. The new metal is wonderfully light. Among the many remarkable qualities of aluminum, such as its resistance to oxydation, either in the air or by acids, its hardness, its wonderful lightness, its malleableness, the facility of moulding it, etc., we are told of another, its sonority. An ingot was suspended by a string, and being lightly struck emitted the finest tones, such as are obtained only by a combination of the best metals.

Cotton Manufacture in the South.—An able writer, in a Northern periodical, has taken up this subject, and shows very conclusively that the Southern States ought to become the manufacturers, as well as producers, of cotton for the world. From facts furnished by this writer, it appears that the cotton manufacture makes up nearly one-half of the external trade of the British Kingdom. The United States furnish four-fifths of the six millions of pounds imported into Great Britain. The writer proves, by statistics and figures, that the British manufacturer receives five times as much for converting the cotton into cloth, as the farmer for producing the raw material, and both employ the same amount of capital. It appears that the same disproportion exists between the profits of the Southern planter and the Northern manufacturer. The writer then sets forth the great advantage possessed by the Southern planter for manufacturing, and shows that the mere saving in the transportation would go largely to the payment of the manufacture. He urges that instead of increasing the product, already too great, the true Southern policy is to enter largely into the manufacture, and thus withdraw a portion of the labor engaged in the production, and employ it in the more profitable mode of manufactures.—*Mobile Advertiser.*

NEW BOOKS.

A Practical Grammar, etc. By S. M. Clark, A.M., Principal of Cortland Academy. New-York: A. S. Barnes & Co. 1855.

Another stone in the "foundation" of the English language. It is "analytic" in its character, beginning with letters, and going on to the most complicate sentences Diagrams have been introduced for illustrating the subjects, the value of which, says the author, has been tested by experience, being of as much value here as in Mathematics, since by it the mind is relieved, and receives valuable aid from the eye. This new candidate for popular favor will, no doubt, receive its share of attention.

The New-York Musical Review and Gazette. Mason & Brothers, New-York.

We have long intended to commend this capital Weekly sheet to all our musical friends who like to be posted up on American and foreign musical affairs. Every number pays well for the reading, and if we ever differ from the Editor, it only shows that "editors disagree" in music as well as elsewhere. We say emphatically, this journal is well worth the respectful attention of the public.

NEW MUSIC.

PIANOS FOR PUBLIC SCHOOLS.

WE learn from the Buffalo *Courier* that the citizens of School District No. 14, by their committee, after examining various Pianos with reference to durability, finish, tone and comparative excellence, have selected one of Messrs. Boardman & Gray's Pianos, with the corrugated sounding-board, for their school.

This is an example that should be imitated by other schools. Let Music and cheerfulness take the place of the rod and arbitrary law in schools, and we have taken a long step in the way of human progress that will not need to be retraced.

And as to Pianos, those made by Messrs. B. & G. certainly stand A No. 1 in the list. They are made to last and improve rather than grow dull with age. They have several points of excellence (secured by letters patent) which others have not, and are pronounced by many of our best Pianists to have no equals in any country.

WE have received from the House of S. T. Gordon, 297 Broadway, where lovers of good music can be supplied with whatever is fresh or desirable in that line, as also with Pianos, Melodeons, and Organs, from the best manufacturers, a choice selection of music, consisting of Polkas, Schottisches, Ballads, comic, sentimental and moral. Among which are—"My Mother's Grave," by W. G. Wetmore, M.D ; "The Early Flower," by W. H. Hartwell ; "Spare the Old Homestead," by J. P. Webster; "The Poultry and The Baby-Show Polkas ;" "Have you seen Sam," etc , etc.

List of Patents Issued

FROM JULY 10, 1855, TO AUGUST 3, 1855.

John Aspinwall, London, for improvement in apparatus for draining sugar.

Charles Atwood, Birmingham, Conn., improvement in ventilating railroad cars.

Jonathan F. Barrett, North Granville, N. Y., for improved method of raising and lowering the cutters of harvesters.

Thomas Barrows, Dedham, improvement in process for treating wool.

Wm. Blackburn, Jersey City, N. J., for automatic machine for turning ship spars, etc.

Francis B. Blanchard, Waterville, Me., for improvement in air and steam engine.

Samuel W. Brown, Lowell, for improvement in gas regulators.

Eleazar Brown, Jr., for improvement in lubricating compounds.

S. N. Campbell, Elgin, Ill., for improved sunshade.

Daniel Campbell, Washington, D. C., for improvement in saddle trees.

James E. Crook, Poughkeepsie, for device to allow the escape of waste water from pump barrels.

Lyman Clinton, North Haven, Conn., for improvement in straw cutters.

Daniel Deshon, 2d, Whitestown, for improvement in spark arresters.

Rufus M. Dill, of Holyoke, for improvement in looms.

Sheldon S. Hartshorn, of Orange, Conn., for improvement in buckets.

John J. Heard, Boston, for ship pump.

Enoch Jackman and Edwin G. Dunham, Portland, for improvement in fastenings for carpets.

Benjamin F. Joslyn, Worcester, improvement in slide wrenches.

Wright Lancaster, of Harmony Township, Ind., for improvement in washing machines.

James Murphy, New-York, improvement in steam boilers.

Jno O'Niel, Kingston, N. Y., for improvement in machine for pulverising clay.

Orson Parkhurst and Daniel Bullock, Cohoes, for machine for cutting screws on bedsteads.

Isaac J. Hite, White Post, Va., Assignor to W. F. Pagett, of same place for improvement in harvesters.

F. A. Parker, Shaftsbury, Vt., for improvement in saw-sets.

Adonijah and Simeon Peacock, Cincinnati, for improvement in attaching cast points to steel mould-boards of plows.

Samuel Pearson and Wm. H. Gardner, of Roxbury, for improvement in rope and cordage machines.

William Robinson, Augusta, Ga., for stave machine.

Stephen Saunders, South Kingston, R. I., for vibrating stop water for ships and other vessels.

Frederick Scheurer, N. Y., for improvement in counter scales.

Jos. Smart, Philadelphia, for self-regulating water packing for pumps, etc.

Samuel W. Soule, Oswego, for improvement in excavators.

Sophia B. Spafford, administratrix, and George Alexander, administrator of Simeon L. Spafford, deceased, (late of Philadelphia,) for improvement in railroad draw-bridge signals.

Andrew Stoeckel, N. Y., for machine for cutting legs for pianos, tables, etc.

Chas. M. Swany, Richmond. Ind., for guage or stair rails.

Charles F. Thomas, Taunton, for improvement in the means of increasing draft in locomotives.

Stephen Ustic, Philadelphia, for improvement in brick presses.

Orrin D. Vosmus, Mt. Sterling, Ky., for improvement in open stirrups.

Wm. E. Ward, Port Chester, for improvement in machines for making bolts.

Jerome B. Woodruff, Washington, D. C., for improvement in sewing machines.

John C. Young, Middletown, Md., for machine for boring posts and pointing rails.

John Edgar, Baltimore, Md, for self-regulating wind-mills.

Wm. P. Walter, Philadelphia, for improvement in manufacturing plate glass from cylinders.

Abner Whitely, of Clark county, Ohio, for improvement in grain and grass harvesters.

John Philips, of Waynesborough, Pa., assignee to Benjamin Brantz, of the same place, for self-regulating wind-mill.

"The Delaware Air-Spring Manufacturing Company," assignee of James F. Heyward of Wilmington, Del., for improvement in pneumatic springs. Patented in England, Jan. 24, 1855.

Chas. F. Brown, Warren, R. I., improved mode of mounting ordenance.

C. H. Butterfield, South Lancaster, Mass, improvement in lanterns.

Washington H. Bixler, Easton, Pa., improvement in nut machines.

Benj. Eastman, Philadelphia, improvement in invalid bedsteads.

Jacob Edson, Boston, improved method of operating valve of pumps.

Edwin Ellis, Ansonia, Conn., improvement in machines for forming metal tubes.

John Frazer, New-York, assignor to Logan' Vail & Co., of same place, improvement in adjustable rises.

William Gourley, Clarke county, Va., improvement in harrows.

John K. and William P. Gamble, Philadelphia, improvement in safety railroad draw-bridges.

Francis Blake, Needham, Mass., improved rosin oil lamps.

Joseph C. Gartly and Jacob Fox, Philadelphia, fan-blower.

L. A. Gibbs, Wash'n, D. C., expanding auger or bit.

John B. Holmes, New-York, assignor to A. R. Pratt, same place, improvement in ship's capstans.

J. Carroll House, Lowville, N. Y., alarm bedstead.

Aaron G. Heckrotte, New-York, improvement in railroad car coupling.

Tyler Howe, Cambridgeport, improvement in bedsteads.

Jules Jennotat, Paterson, N. J., improvement in bottle fastenings.

Harold Kelsea, North Branch, N. H., improvement in treating a single strand and twisting sewing thread.

J. S. Morgan. Highland, Ill., wind-mill.

Edward Mingay, Boston, improvement in derricks.

David Mathew, Philadelphia, improvement in apparatus for heating feed water to locomotive engines.

Jos. A. Peabody, Lowell, machine for morticing window blinds.

S. T. Parmelee, New-Brunswick, N. J., improvement in attaching metallic heels to india rubber soles.

Oliver Palmer, Buffalo, wrecking-pump-rotary.

John Ryan, Wilmington, Del., improvement in railroad car coupling.

Frederick R. Robinson, Worcester, improvement in guides for sewing machines.

John B. Stott and Alex. Ferguson, Troy, improvement in cross-head attachment for working engine valves.

Matthew Ludwig, Boston, machine for sawing down trees.

Otis Tufts, Boston, improvement in constructing iron ships. English patent dated April 2, 1854.

Wm. C. Worthen, New-York, improvement in metallic blinds for doors and windows.

Willard M. Wheeler, Upton, Mass., water-wheel.

Moses D. Wells, Morgantown, Va., improvement in churns.

Edwin Williams, Covington, Ky., improved excavating machine.

Edwin D. Willard, Washington, D. C., improvement in gas-burning gridirons.

Edward Wood, Philadelphia, improvement in looms.

David Watson, Petersburgh, improvement in harvesters.

Chas. Waters, Brooklyn, improvement in lanterns.

Henry Van De Water, Troy, turbine water wheel.

James Dickinson and Oliver White, Richmond, Ind., self-regulating wind-mill.

John Pepper, Franklin, N. H., assignor to the Franklin Mills of same place, improvement in knitting machines.

Albert Reinhardt, New-York, assignor to Jas. Schlumberger & Co., Gueberviller, France, improvement in machinery for preparing wool for combing.

W. H. Elliot, Plattsburgh, N. Y., improvement in devices for sealing preserve cans.

John A. Reynolds, Elmira, improvement in fire arms.

John A. Reynolds, Elmira, improved apparatus for cocking repeating fire-arms.

Cephas Appleton, Lyndon, Vt., Machine for cutting sheet metal.

John and Evan Archer, New-Brunswick, N. J., for cutting boot and shoe uppers, soles, etc., from sheets of india rubber.

Archibald Bailey, Blue Rock, O., whippletree.

William Ball, Chickopee, Mass., feeding water steam boilers by auxiliary engines.

G. Thompson, E. Tarentum, Pa., mode of separing potash and soda.

Pierpont Seymour, E. Bloomfield, N. Y., seed planter.

A. E. Smith, Bronxville, N. Y., washers for axles.

C. A. Wilson, Newport, Ky., oscillating valves and gearing for pumping engines.

Wm. Mootry, New-York, refrigerators.

Jesse Urmy, Wilmington, Del., grain and grass harvesters.

Augustus Seaborn, assignor to E. T. Fairbanks & Co., St. Johnsbury, Vt., union platform scales.

S. T. Jones, New-York, furnace for treating zinc ore.

Andrew Campbell, Newark, N. J., feeding paper to printing presses.

Willis Humiston, Troy, N. Y., candle mould apparatus.

Merwin Davis, New-York, printing press.

Augustin Duboce, Brooklyn, N. Y., propellers.

John A. Burnap, Albany, N. Y., double reciprocating split piston rods for pumps, etc.

Frank Chase, So. Sutton, N. H., window blinds.

Matthew F. Connet, Plainfield, N. J., turning cylinders of wood.

J. T. Russell, Tyler county, Va., wagons.

T. E. Sandgren. Wilmington, Del., hydrodynamic friction joints.

G. R. Comstock, Manheim, N. Y., cheese presses.

John Allender, New-London, Ct., bottle fastenings.

James Montgomery, Baltimore, Md., wrought iron shafts,

Henry Colgate, Jersey City, N. J., starch making.

John Williams, Hartford, Ct., calendar clocks.

Albert Walcott, Detroit, Mich., dressing lumber from the log.

E. A. Swan, Brooklyn, N. Y., and De Witt C. Smiley, New-York, dressing and carving stone.

F. O. Degener, New-York, paging machine.

W. H. Elliott, Plattsburgh, N. Y., exhausting and sealing vessels.

Phineas Emmons, N. Y., sizing hat bodies.

Benj. Fulgham, Richmond, Ind., sawing machines.

Kington Goddard, Philadelphia, Pa., bridle reins.

C. H. Guard, Brownsville, N. Y., boring and mortising hubs.

Joseph Harris and Elbridge Harris, Boston, Mass., hand stamp.

John Harris, N. Hoosick, N. Y., machinery for making rope.

Horace Hotchkiss, Waterbury, Ct., cutting files.

M. G. Hubbard, New-York, improvement in carriages.

John Jerries, Bethany, N. Y., stalls for horses.

James Kelren, Canton, Mass., assigner to himself and George Banks of E. Boston, Mass., making railway chairs.

Francis Kenney, Springfield, Mass, parlor stoves.

E. B Larcher, Baltimore, Md., making gutta percha boots

Saml. Macferran, Philadelphia, Pa., processes for smelting iron.

D. M Messer, Boston, Mass., processes for hulling cotton seed.

Jonas Moore and D. P. Adams, Marietta, Ohio, administering pulverulent medicines

E. N. Moore, Lenox, Pa., and J. B. Hanyan, Chester, N. Y., balance water gate.

H. R. Worthington, Brooklyn, N. Y., water metre.

Joseph Plegar, Birmingham, Pa, hinges.

H. T Robbins, Lowell, Mass., shuttle guides for rooms.

John H. Atwater, of Kalamazoo, for improvement in washing machines.

Nelson Barlow, of Newark, for improved method of feeding planks to planing machines.

Simon Barnhart, of Chilicothe, for fan blower.

Oliver D. Barrett, of Fulton, N. Y., for improvement in washing machines.

John Ericsson, of New-York, for improvement in air engines.

John A. Elder, of Westbrook, Me., and John Richardson, of Portland, Me., for improved machines for ruling and paging paper.

John A. Elder, of Westbrook, Me., and Ephraim Wood, of Winthrop, Me., for improvement in machinery for seizing and dressing warps.

Fred'k Field, of Toledo, for cross-cut sawing machine.

Jas. Harrison, Jr., of Milwaukee, for improvement in sewing machines,

Liveras Hull, of Charlestown, Mass, for machine for sawing rattan.

Solon S. Jackman, of Lock Haven, Pa., for improvement in machines for compressing puddler's balls and other masses of iron.

Joseph Johnson, of Washington, D. C., for improvement in washing machines.

Fielding H. Keeney, of Newport, Ky., for circular saw mandrel.

Stephen Meredith, of Meadsville, Pa., improvement in distilling coal with hydrogen gas.

Fred'k Perry, of Newark, for improvement in cut-off valves for steam engines.

Wm. H. Rhodes, M. D., of Berlin, N. Y., for improvement in artificial legs

Wm. Selters, New-York, for improvement in ventilating hats.

Isaac M. Singer, New-York, for improvement in sewing machines.

Paul Stillman, New-York, for improvement in water guages for steam boilers.

Elam C. Shaftsbury, of New-York, for improvement in excluding dust from railway cars.

Geo. S. Shepard, of Canaan, N. Y., for improvement in musical road instruments.

C. C. Taylor, of Delafield, Wis., for improvement in bucket for water-wheel.

Anton Von Hagen, of Cincinnatti, for improvement in soap cutting machines.

Norman W. Wheeler, of Cincinnatti, for improved method of operating steam valves. Antedated March 1, 1855.

Henry R. Worthington, of Brooklyn, for improvement in direct acting hydraulic steam pumps.

Wm. G. Wolf, of Philadelphia, for improvement in writing desks.

Sam'l M. Yost, of Connersville, Ind., for improvement in washing machines.

Lucien N. Bigelow, of Cuba, N. Y., for improvement in seeding machines.

Sam'l A. Briggs, of Providence, for improvement in hot-air furnaces.

John P. Hayes, of Philadelphia, for improvemen in ovens.

DESIGN.

Nathaniel P. Richardson, of Portland, for design for Franklin fire-places.